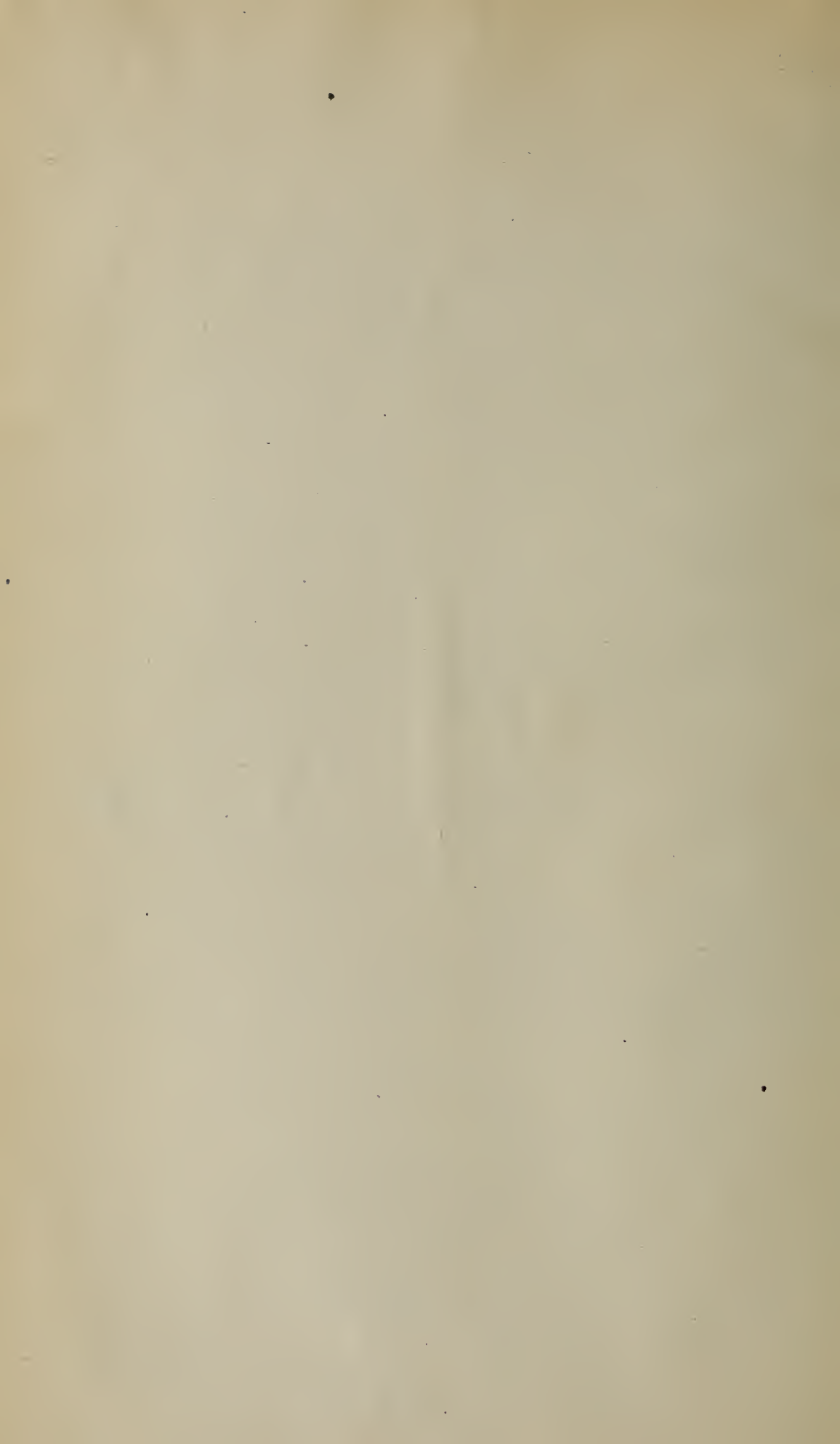


No.

BOSTON
MEDICAL LIBRARY
ASSOCIATION,
19 BOYLSTON PLACE.





DENTAL TIMES.

VOL. IX.

PHILADELPHIA, JULY, 1871.

No. 1.

Original Communications.

THE LAPSE.

BY T. L. BUCKINGHAM, D. D. S.

In the January number of the DENTAL TIMES I published an article on "Reducing Gold and Silver Scraps and Filings to Plate." In giving a process to reduce the chloride of silver to a metallic state, I said that "the chloride should be covered with fresh water, add a small portion of sulphuric acid, then put a few small pieces of zinc in the vessel and let it stand for a day. *The chlorine will leave the silver and combine with the zinc.*" To what is stated in this last sentence one of the editors of the *Dental Register* takes exception, and thinks I have not correctly explained the changes that take place. His paragraph reads thus, "The closing sentence contains a lapse. The zinc decomposes the water, taking oxygen and liberating hydrogen. The hydrogen takes the chlorine from the silver. As the oxide of zinc is formed it unites with the sulphuric acid. The liquor contains sulphate of zinc, not chloride, and the escaping gas is hydrochloric acid, not hydrogen. And Professor B. knew all this as well as anybody, and he should have written more carefully in writing for the young, as he proposed to do." Now, the first part of this paragraph is partly correct, and I committed an error in not explaining the reaction more fully. "The zinc decomposes the water, taking oxygen and liberating hydrogen," and this is the first change that takes place. "The hydrogen takes the chlorine from the silver. As the oxide of zinc is formed it unites with the sulphuric acid," and the sulphate of zinc, being soluble, is dissolved in the water. But what becomes of the hydrogen after it has taken the chlorine from the silver? The editor says the gas which escapes is hydrochloric acid (gas) and not hydrogen.

Here he commits a palpable error. He knows as well as anybody, and he should have written more carefully when he criticises for the young, that hydrochloric acid gas is one of the most soluble gases we have. Water

at the ordinary temperature will take up nearly five hundred times its volume of this gas, so that if there was no more hydrogen liberated by the sulphuric acid acting on the oxide of zinc than the chlorine of the chloride of silver would combine with, there would be no gas escape; it would be all dissolved in the water, or until it became hydrochloric acid, as strong as we buy it in the shops. That gas does escape is evident from the effervescence that is seen while the process is going on.

The Dr. says it is "*not hydrogen.*" What is it? I contend that it is hydrogen and nothing else, and in order to verify this, I made several experiments. In an eight ounce bottle which I arranged with a cork and tube so that I could collect the gas, I put some chloride of silver, water, zinc and a little sulphuric acid, and as the gas passed over I collected it over water as we usually collect hydrogen gas. I then applied a lighted taper to the gas I had collected, and it ignited with an explosion at the mouth of the vessel, and when I passed the taper up into the gas, it was extinguished, and it reignited when I drew it out. I then introduced a glass tube drawn out at one end to a fine orifice, into the end of the gum tube through which the gas was passing, and ignited the gas at the small orifice, where it burned with all the appearance of hydrogen. From these results I concluded it was hydrogen. If it had been hydrochloric acid gas it would have been absorbed by the water, or if I had collected it in any other way than over water it would not have burned.

In order to test whether chlorine was present, I passed some of the gas through a solution of nitrate of silver, and although the gas passed through for more than five minutes there was not the least indication of chlorine. To verify this experiment, I took a drop of hydrochloric acid on a glass rod, and put it into the nitrate of silver solution, when there was instantly formed a thick precipitate of the chloride of silver. From this I concluded that no chlorine came over with the hydrogen. As the gas that escapes is hydrogen, where does it come from? It has been shown that the hydrogen that is liberated by the zinc decomposing the water, goes to the chlorine of the silver and forms hydrochloric acid. The chlorine of this compound has a strong affinity for zinc, and combines with it even in the presence of sulphuric acid, so that in the chemical changes that are going on, both the sulphate and chloride of zinc are formed, and as they are both soluble they are retained in the water. By the decomposition of the hydrochloric acid by the zinc, an additional quantity of hydrogen is set free, and from the two sources more hydrogen is generated than the chlorine of the silver requires to convert it into hydrochloric acid. The excess escapes in the form of gas.

If I am wrong in the above statements I hope the Doctor will correct me.

REPORT OF TWO INTERESTING CASES.

BY L. D. WALTER, D. D. S.

REPLANTING TEETH.

This subject, now so often mentioned in the several dental journals, is daily attracting increased attention. The idea of replanting natural teeth is ridiculed by the majority of the profession, but the success which has attended the many cases so lately reported, bids fair to convert the most obstinate among the doubting.

The following case may add something to what has been done in this comparatively new field. A little girl in average health, about thirteen years of age, fainted, and, falling on the floor, dislodged her two superior incisors. She was picked up, removed to her room, and the family physician called to attend her. Her suffering was but temporary and all anxiety soon subsided. Hearing accidentally of the child's misfortune, I sent to learn if the teeth had been preserved. Receiving an affirmative answer, I proposed that the teeth be reinserted, to which the parents gave their assent. Success in this case was, to my mind, doubtful, as the teeth were perfectly dry and had been out of place fifteen hours.

However, the teeth were thoroughly cleaned, and, after the alveoli had been syringed with tepid water, inserted, and held in position by means of the fingers for about twenty minutes. The crowns were then capped with sheet tin and this bound by means of fine wire to the adjoining laterals.

The appliance was kept in position one month and then removed. In the meantime a suitable mouthwash was used several times daily, to reduce the inflammation. The teeth are now, apparently, as firm and healthy as ever. They are not at all decayed, and the color does not indicate death of the pulp. The above operation was performed eleven months ago.

A CASE OF FILLING FROM THE APEX OF THE ROOT.

A gentleman in good health, about thirty years of age, called to have his teeth examined. In looking them over, attention was drawn particularly to the right superior lateral incisor. This tooth was of the color peculiar to dead teeth—so called. Closer examination revealed the fact that there was present a large abscess, which evacuated itself by means of a fistula exactly opposite the apex of the root of the affected tooth. Inquiry elicited the fact that the discharge had been more or less constant for a period of not less than seven years. After cleansing the pulp canal thoroughly, it was filled temporarily with cotton, to prevent access of foreign matter of any kind. Treatment was now directed almost exclusively to the cure of the abscess. A plug of cotton was saturated with solu-

tion chloride of zinc and introduced into the abscess. Three days afterward, this was removed and another, somewhat larger, inserted in its stead. These plugs served to restore the parts to a healthy condition, and at the same time to expose the apex of the root, which, from the ease with which it was excavated, was thought to present excessive enlargement of the apical foramen and upper half of the pulp canal. It was found that the apex proper had been entirely absorbed, and the root so hollowed out that the canal presented an hour-glass shape—its greatest contraction midway between the two extremities. The ragged edges of the root were removed and the terminal portion reduced to a smooth condition. To fill the canal properly, by passing the material through the tooth was, under the circumstances impossible. The only alternative left was to fill by passing the material through the opening opposite the apex.

The material selected was simply non-cohesive foil. This was carried down to the greatest contraction of the canal, in pieces of small size and thoroughly condensed. The abscess, which continued to discharge small quantities of pus, was injected from time to time with a mixture of carbolic acid and iodine. This mixture was also painted on the gums surrounding the diseased tooth, by means of a camel's hair pencil. The above treatment has been followed up to the present time, and there now remains but a minute opening, which a few days will see entirely obliterated.

ROCHESTER, N. Y.

ON THE REPLANTING OF TEETH.

BY GEO. T. BARKER, D. D. S.

[A Paper read before the Southern States Dental Association, Charleston, April, 1871.]

Perhaps no subject at the present time is attracting more attention among the advanced thinkers in dentistry than that which is the subject of this paper: for not only does the theme open up a vast field of study and conjecture how far, and how frequently, such a mode of procedure may be practicable, but it brings us naturally to a study of the pathological changes which arise from such action, and the relation which the replanted tooth bears to the rest of the economy. We are led to study the physiological as well as the pathological changes which take place in that remarkable membrane, the periosteum—a membrane, whose agency, recently recognized, as a bone producer, can be said to have remodeled a branch of surgical practice during the last few years, having thus effected the preservation of many limbs that otherwise would have been amputated, and destroyed the usefulness, if not the life, of many a patient. The subject of replanting extracted teeth is not new in dentistry; in many works of old writers we find a short reference to this subject, a summary of which

may be stated as follows: If a wrong tooth has been extracted, or a tooth has been knocked out, it should be washed, the socket cleansed and the tooth replaced. Some believed that union of the separated pulp in the tooth and its former connection took place, because they found no discoloration subsequently ensue.

This view obtains to some extent at the present time, for we occasionally see such assertions in articles in dental journals, though in my judgment the position is erroneous, and cannot be supported by any reliable evidence or probable theory, for reasons which I shall present hereafter. But it is not alone in dental works that reference has been made to this subject, for our magazines have contained from time to time articles where success is chronicled as the result of replanting extracted teeth. Generally, the authors have resorted to this mode of procedure when teeth have been knocked from their sockets by accident, and I doubt not that all within the hearing of my voice, who have been in practice for a considerable number of years, will remember such attempts in their own experience followed by varying successes. Though these cases have been recorded, the question whether or not teeth should be extracted for the removal of some obscure and otherwise (with our present knowledge) incurable disease, has not as yet received the attention which it deserves, and has only been slightly referred to in brief communications, with which I am familiar. My object, however, at this time, is to direct the attention of gentlemen present to a more advanced step in this direction, and urge upon all to prosecute experiments in this particular field, viz: the extraction and replanting of teeth as a means of arresting incurable dental diseases. I will detail, as an example, the following case, which has received treatment at my hands:

Miss H——, aged seventeen years, of a sanguo-bilious temperament, and decidedly healthy organization, presented herself for treatment for alternate face and toothache, in July, 1870. She was at that time residing at Long Branch, N. J., a popular sea-side resort on the Atlantic coast, and as I had made a careful examination of her teeth but a few weeks previously, which, with another unsuccessful search at that time for exposed pulps or dental irritation, led me to fly to that frequent statement of the bewildered physician and dentist, viz: that she was probably suffering from neuralgia, and had better see her physician and obtain some appropriate remedy. This request was complied with, but without relief being obtained from a pain which partook of the nature of *tic douloureux*, but which seemed to be most severe in the lower teeth of the right side. In a week she again presented herself, having suffered greatly. On making at this time a careful examination of her lower teeth, I found slight dental irritation at the root of the right second lower molar. This tooth had a small gold filling

upon its grinding surface, and injections alternately of hot and cold water demonstrated the presence of an irritated pulp. My first step in the treatment was to remove the filling, and, if possible, expose the pulp. This I could not succeed in doing, as the attempt gave so much pain. Failing in this, the cavity was filled with a pledget of cotton, saturated with carbolic acid, and covered with Hill's stopping, to prevent irritation from thermal changes. The carbolic acid was used with the object of inducing union between some of the elements of the tooth bone, as it is believed that, under favorable circumstances, carbolic acid will unite with albumen, forming the carbolate of albumen, an insoluble substance which will protect parts from irritation, and which is hence used for the treatment of sensitive dentine. Finally, blood was freely drawn from the gum over the affected root, and after the bleeding had subsided, the gum structure in the neighborhood was painted with the following preparation, which I have used in numerous instances with most favorable results:

R.—Tr. iodinii, fl. ʒiv;

Etheris, fl. ʒi.—*Misce.*

The object of taking blood from the neighboring parts was to relieve the distended vessels of their accumulated contents; that of applying the ethereal preparation of iodine was to favor absorption of any effusion, the product of inflammatory action, a result which is more frequently obtained with this substance than with any other with which I am familiar, though care is necessary in its use not to allow the cheek or lips to touch the gum until the ether has evaporated, leaving the pellicle of iodine intact, or blistering of the parts will occur.

The treatment, however, was entirely unsuccessful, as the pain continued as bad as before, particularly at night. After a few days, the carbolic acid and gutta percha filling were removed, and the ordinary arsenical paste introduced, for while it is a principle that the paste should not be introduced until the inflammation has subsided in a pulp, as absorption will not readily take place in inflamed parts, yet occasionally the application will excite so much irritation that the pulp will die from over-stimulation. In this case there was a thick covering of bone protecting the pulp from the arsenious paste, and absorption would have to take place through this plate before the pulp could be influenced. The introduction of the paste only added to the pain, and though retained for some forty-eight hours, did not in any way diminish the sensitiveness of the pulp. The carbolic acid and Hill's stopping were again introduced, only to be followed by the same result as above stated. At this time the young lady had become so much worn down from loss of sleep that resort was had to the syrup of the hydrate of chloral as an anodyne, the following prescription being used:

R.—Chlorali hydratis, ʒss;
Aquæ distil., fl. ʒiv;
Syr. aurant.,
Mucil. acaciæ, āā fl. ʒss.—*Misce.*

A tablespoonful was given at night. And I would here state that though used very frequently for six months by this young lady, it was not found necessary to increase the dose, as a tablespoonful at night would cause a good night's rest to ensue, while no headaches or other unpleasant result were present the succeeding day. It is too much to claim that the continued use of this anodyne would present the same peculiar advantage in all cases, as we must ordinarily expect to resort to an increase in quantity and frequency of doses, the longer any sedative is used.

The pulp paste was again introduced, was retained for forty-eight hours, though she suffered excruciating pain, but was finally removed, the pulp still being as sensitive as ever. Resort was now had to an anæsthetic; the young lady was placed fully under the influence of chloroform, (as her friends preferred that anæsthetic, though my own preference is always for ether,) the pulp cavity was drilled into, and the living pulp wholly removed. Of course, my belief was, that the trouble would now end. The pulp chamber was left open; the gums thoroughly painted with officinal tincture of capsicum, and the patient dismissed with the assurance that all pain would in a short time cease. The next day the tooth was as painful as ever, the inflammation of the periosteal membrane as great as before, the tooth was elongated, and there was no improvement whatever over the former condition.

The following treatment was then resorted to: one-sixth of a grain of morphia was injected hypodermically over the root. This was followed by temporary relief only. Five drops of tincture of aconite root were then placed on cotton, and laid over the affected root; partial relief followed. The tooth was not constantly painful, but shooting pains would occur frequently during the day; no sleep could be obtained at night without using the syrup of hydrate of chloral, as the pain was generally constant at that time. In this way the tooth continued for a space of nearly six months, every effort being made on my part to reduce inflammatory action, and to have it terminate in resolution, and every agent with which I am familiar, that could possibly be used, was tried, unsuccessfully. An effort was then made about the first of the present year, to obtain a termination of the inflammation by suppuration, in the hope that an abscess would be formed, which could be more successfully treated. Heat to the face on the affected side was tried, frequent use of hot water in the mouth, hot fomentations and cataplasms, all of no avail; it would not terminate in suppuration, but would simply ache!

ache! In the whole of this time the young lady had never once asked to have the tooth extracted, but had borne the pain with a heroism truly wonderful, and which, in consideration of my numerous failures, entitled her to be considered the most courageous person with whom I had ever met in my professional experience. The determination was now made in my mind to extract the tooth, and if practicable, replace it. Accordingly, chloroform was administered; the tooth was extracted; the end of the root (fortunately this second molar had the roots joined,) was cut off, and the tooth was instantly placed in a solution of tepid water, fl. ʒss, carbolic acid, gtt. v. The socket was wiped with the solution, and the blood carefully removed. A broach was introduced into the pulp cavity, which was found to be entirely free, and the tooth was carried into its former socket, the shape of which favored its retention. The cavity through the tooth was left open, and the patient was dismissed. No after treatment except an astringent wash has been made use of, and no pain of any consequence has been felt up to this time. The articulation is perfect; the tooth is as firm as other molars in her mouth, and it is closed with a good temporary filling, which I shall in a short time replace with a permanent one of gold; and much to my own and the young lady's gratification, her courage bids fair to meet with what, in her estimation, is a fair compensation for her sufferings. The part of the root removed (which is shown) presented these characteristics; the periosteum was greatly inflamed, but just outside the apical foramen there was a small mass of apparent pulp tissue, having somewhat the appearance of an abscess, only smaller, and apparently solid in structure. This mass was placed beneath the field of a microscope, and was found to consist of true pulp tissue, containing multitudes of calcareous granules. Here, then, was the secret of all my trouble; instead of a calcified pulp, as shown in these specimens, or nodules in the pulp, which many doubtless have seen, there was developed or deposited granular matter, which, so long as present, excited intense inflammation, first in the tooth pulp and periosteum, and lastly in the periosteum and tooth socket. The object in cutting off the root was, to allow a place for the accumulation of the effusion which would certainly be poured out, as the result of the extraction, and which, accumulating, would tend to protrude the tooth from its socket, and interfere with articulation—a result which generally follows when teeth are replaced, and this action is neglected, causing the tooth sooner or later to drop from its socket, or be a constant source of annoyance to the patient. My belief is, that the remaining periosteum on the root of the tooth is at this time living; that that membrane does not undergo molecular death so readily as other structures, and that under favorable circumstances vitality will remain. I have proved this position beyond the shadow of a doubt, in cases where teeth have been returned to their sockets, and have subsequently been ex-

tracted, living periosteum being found upon them. That a separated pulp can unite to its former connection does not admit of a probability, for the retraction and contraction of the divided vessels would prevent such a result from being accomplished were union by adhesion possible; therefore, when a tooth is inserted, with the pulp remaining, there is every probability that alveolar abscess will occur, and the absence of discoloration is only an evidence that the absorbents have carried off the effete materials, the result of a disintegration of the pulp.

As a fitting close to this paper may we not assume that the transplanting of teeth opens to us a method of successfully treating some obscure dental diseases, and of combating intractable alveolar abscess, partial necrosis, exostosis, and perhaps other dental affections. It seems to me the answer must be in the affirmative.*

April 4, 1871.

REMARKS UPON A CASE IN WHICH A PLATE WITH ARTIFICIAL TEETH WAS SWALLOWED, DETECTED IN THE STOMACH AND EXTRACTED.

BY J. EWING MEARS, M. D.

T. B. Curling, F. R. S., communicates to the thirty-fifth volume of the Transactions of the Royal Medico-Chirurgical Society of London, a case, occurring in the practice of Mr. L. S. Little, in which an artificial denture was swallowed, and being detected in the stomach by a probang, was extracted.

The following is the report of the case in full:

"H. K.—, female, aged 40, was admitted into the London Hospital on the 2d of January, 1864. Two days before her admission, the patient, while in an epileptic fit, swallowed a gold plate with five artificial teeth attached to it, and with three sharp hooks (clasps) to fix the plate to the natural teeth. On recovering from the fit she felt a good deal of pain when attempting to swallow, but succeeded in eating a considerable quantity of new bread as she was recommended to do. She shortly afterwards vomited up the bread, and had not been able to keep down any food, either solid or liquid, since the accident. She therefore came to the hospital. The house surgeon easily passed a probang into the stomach, and felt and heard it strike against a hard body. An emetic was given without result. The next morning I saw the patient and sounded the stomach with an ivory-tipped whalebone probang, and at once detected a metallic or hard body. I then introduced the coin-catcher, a whalebone probang, with a split ring opened out so as to form a hook at its end, and after several attempts drew up with very little resistance, as far as the pharynx, what proved to be the plate with the teeth attached. The plate could now be felt with the tip of the finger when introduced as far as possible, but every attempt to bring it further without force, failed. Various curved forceps were tried, but ineffectually, as they slipped off the smooth surface which seemed uppermost. The plate was moved a little with each attempt, but was then drawn down again and impacted in the same place. The patient now became much distressed in her breathing, the plate probably pressing on and fixing the larynx so that it was necessary to move the plate either upward or down-

* Since the above paper was read, the corresponding molar on the left side, though comparatively sound, was likewise affected, and it, too, was extracted and replaced, with the same success as above mentioned.

ward. I therefore again introduced the coin-catcher, passed the plate, and with a little force removed it. The patient spat up some frothy mucus tinged with blood. She was much relieved when the operation was over, and pleased at its result. The plate was much bent, probably by the forceps, and reduced in diameter, so that it was at the last the more easily extracted.

She was ordered to suck ice, and to take twenty drops of laudanum.

Two days after, she complained that her throat was very sore, and that she could scarcely swallow. There were no signs of local or general ailment. The next day she could swallow fluids with care, but said she brought up a great deal of phlegm. During the following week she complained of a lump in her throat, which was referred to about the level of the thyroid cartilage on the left side; but by the 20th inst. she could eat quite well.

The foreign body consisted of a gold plate, curved in form so as to fit the front of the jaw, and made to sustain five artificial teeth—three incisors, a canine and a bicuspid. It measured one-inch and three quarters in its greatest length, and an inch and a quarter in its greatest width. At one extremity there were two projecting hooks (clasps) for attachment to the adjoining teeth, one of which was very sharp and prominent, the other was curved and also sharp pointed. At the other extremity there was only one short curved hook (clasp.)

When I was called to this case, the question arose whether I ought to attempt to remove the teeth or not—of their presence in the stomach there could be no doubt—they had been there three days without passing any further, and they caused so much irritation as to prevent the retention of food in the stomach. During this period, notwithstanding frequent vomiting and the action of an emetic, the teeth had not been moved upward. It seemed, therefore, probable that they would remain in the stomach, and not only interfere with its functions, but also injure its walls. From these considerations the removal of the foreign body, if it could be effected without force, seemed desirable; and as the teeth had already passed the cardiac orifice of the stomach, they would, in all probability, repass through the œsophagus with ease. After several attempts at removal it was clear, on withdrawing the hooked probang, that it had caught hold of something which followed it so readily that there seemed no reason to stop, and when once the plate reached the neck, the chief reason for anxiety was at an end, viz: that of it becoming impacted in the œsophagus where they could not be got at from without.

Mr. Pollock's experiments go to show that even a small plate with sharp points will not pass beyond the stomach, and this case is confirmatory of his experiments. In a similar case, then, the surgeon, when satisfied that the teeth are in the stomach, and that they will not, in all probability, be removed by nature, should attempt their extraction, with the assurance that if they will pass the cardiac orifice of the stomach without force, they will pass through the whole œsophagus."

The above case is interesting, in view of the fact that it is the first on record, as far as we are able to learn, from examination of the surgical authorities at our hand, in which an attempt has been made to remove a foreign substance from the stomach by extraction. The treatment recommended in these cases, is to permit substances with smooth surfaces to pass by the bowel; pointed substances, such as knives, &c., are liable to lodge, and for their removal the operation of gastrotomy is advised, and has been successfully performed in a number of instances. This operation is of a grave character, and consists in making an incision through the walls of the abdomen and stomach, and in this way securing and removing the foreign body. Cases, however, are recorded, in which the patients have refused to submit to operation, and the substances have passed into the intestine, sometimes passing through the entire bowels, and being evacu-

ated *per anum*, and again remaining for a long period lodged in some portion of its extent, without producing any inconvenience.

In connection with the case given above, we would allude to the report of a case, recently seen (in one of the London Medical Journals, we believe,) in which an artificial denture was swallowed, and although having clasps, and being irregular in shape, passed, without producing any injury, "*per vias naturales*."

Prof. Gross, (Treatise on Foreign Bodies in the Air-Passages,) mentions a case in which an artificial denture was inhaled, passed into the right bronchus, and was found on dissection, thirteen years after, in the right thoracic cavity, into which it had passed by ulceration.

The most remarkable instance of which we are aware, of the passage of foreign substances into the stomach, is reported by Dr. Marcet, (Med. Chir. Transactions, vol. xii. p. 52, 1822,) as occurring in the case of an American sailor, who swallowed a number of clasp-knives. He had witnessed the display of knife-swallowing by a juggler, and, in a drunken fit, boasted that he could do the same. He immediately swallowed *four* knives, one of which passed in the afternoon, two the day following, and one remained, without causing inconvenience. Six years after, he swallowed *fourteen* knives in the course of two days, and as a result, suffered so much from pain and vomiting, that he was compelled to enter the hospital, where he was "safely delivered of his cargo," as he nautically expressed it. Nine months later, he in one day swallowed *five*, and on the next *fourteen* more. This cargo was rather more than he could well carry, made him quite ill, and compelled him to subject himself to medical treatment.

Three months after, he took a dose of oil, and felt the knives "dropping down the bowels"—subsequently he passed some fragments and vomited a knife handle. Three years later he died in Guy's Hospital, in a state of great emaciation. On making a post mortem examination, the stomach was found to contain "*thirty or forty* fragments, of which thirteen or fourteen were evidently blades, much corroded and diminished in size. In the intestines, one of the blades and one of the back springs were found; the latter four inches and a half long, had transfixed the colon opposite the left kidney, and projected into the cavity of the abdomen, while the other was stretching across the *rectum*, with one of its extremities actually fixed in the muscular *parietes* of the *pelvis*." During six years this patient had swallowed in all *thirty-seven* knives, and lived four years after taking the last dose of *nineteen*. Dr. Pavy (Digestion and its Disorders) has quoted this case as illustrating in a most striking manner the solvent power of the gastric juice, as exhibited in the condition of the fragments found in the stomach.

It may frequently happen to dentists to be consulted in such cases as that communicated by Mr. Curling, and hence information upon the subject becomes of interest to them.

Original Lectures.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

SURGICAL CLINIC OF PROFESSOR MEARS.

GUNSHOT WOUND OF THE FACE, INVOLVING THE RIGHT SUPERIOR AND RIGHT RAMUS OF THE INFERIOR MAXILLARY BONES, WITH FORMATION OF A FALSE ARTICULATION, AND DIVISION OF THE RIGHT FACIAL NERVE.

In considering, at one of our last lectures, the subject of fractures of the maxillary bones, we had occasion to examine into the causes concerned in their formation. Among the causes enumerated, gun-shot wounds were noted as being largely engaged in the production of these lesions, and some points in reference to their character were touched upon. To-day, we are permitted to study the subject more closely, and to examine the results of these causes as illustrated in one before us. The following history of the case is given :

J. S—, æt 49 years, occupation that of a book-binder—married, and a native of Delaware, was wounded at the battle of Cold Harbor, Va., June 3d, 1864. He states that he was struck, while making a charge, by a small conical rifle ball, which entered at a point just below the left ala of the nose at its junction with the upper lip; penetrating the soft parts, it came in contact with the alveolus of the left maxilla just over the left lateral incisor, carrying away this portion of the bone with the teeth, and continuing its course, it shattered the right superior maxilla and ramus of the inferior maxilla, and passing through the lower part of the substance of the parotid gland emerged at a point below the lobule of the right ear. Copious hemorrhage ensued upon receipt of the injury, which continued for two hours, and ceased spontaneously, no efforts having been made to control it. He states that he was in a hospital for four months, during which time suppuration persisted, and spiculæ of the bone were discharged or removed from time to time by the surgeon, or by himself. Secondary hemorrhage did not occur, and recovery, although slow, was unattended by any untoward symptoms.

On making examination, you will observe his present condition. The point of entrance of the missile is marked by a small star-shaped cicatrix, while that of exit shows one large and irregularly shaped—larger and more irregular in shape than you would expect to find, which is explained by the statement of the patient, that free suppuration occurred about this opening, and quite large pieces of the inferior maxilla were discharged through it. The face is very much distorted, the lower jaw being drawn to the right side, by reason of the destruction of the ramus, and a peculiar appearance is imparted to the countenance consequent upon paralysis of the muscles of expression. There is drooping of the angle of the mouth and of

the cheek, the palpebral fissure is abnormally wide, giving a staring expression to the eye. On carrying the finger along the border of the inferior maxillary bone externally, the point at which the fracture commences can be distinctly felt, and there appears to be a loss of bone for an interval extending from a point just in front of the angle of the jaw to the neck of the condyle. The condyle of the jaw can be felt in the glenoid fossa, where it is immovably fixed; the coronoid process cannot be distinguished. Extending between the fragments, and, as it were, bridging over the chasm, there can be traced a ligamentous band, which forms at this point a false joint, and permits free motion of the jaw, the extent to which the mouth can be opened is very little restricted, so well does this substitute for the normal articulation perform its duty.

On examining the oral cavity, the destruction of bone tissue caused by the ball is found to have been very extensive; the two incisors of the left superior maxilla, with the alveolar process, are removed. On the right side, the anterior portion of the palate process, with a portion of the body of the bone, and the entire alveolar process, have been destroyed. The cavity of the antrum is opened; an opening sufficient to admit the end of the little finger exists in the palate process, and communicates with the right nasal fossa. The injury to the inferior maxillary bone can be more distinctly traced from the inside, and is found to have resulted in the removal of a portion of the body, and almost the entire ramus of the jaw, the interval extending from a point corresponding to the second molar to the neck of the condyle. The duct of Steno has not been interfered with.

On the left side, the teeth of the upper and lower jaws are not in exact apposition, those of the upper jaw projecting over those of the lower. This is a consequence of the destruction of the right ramus of the jaw, by reason of which there is permitted a lateral displacement; this displacement has been gradually accomplished, and as it has taken place, the inner surfaces of the upper and the outer surfaces of the lower teeth have been removed by attrition, so that, as you observe, nearly one-half of the crown is destroyed.

There are several points of interest in connection with this case, to the consideration of which your attention is directed. These are—(1.) The absence of hemorrhage, both primary and secondary, of such a serious character as to require the ligation of the vessels furnishing the vascular supply to the parts. (2.) The extensive destruction of osseous tissue, produced by the missile. (3.) The formation of the false joint after the loss of so large an amount of osseous substance; and (4.) The occurrence of facial paralysis.

In reference to hemorrhage, consequent upon the injury, the patient states that it was very copious for two hours succeeding the receipt of the

wound; that it ceased spontaneously, and did not recur. In examining the course of the ball, it appears scarcely possible that the external carotid artery, which, as you know, lies imbedded in the substance of the parotid gland, should have escaped wounding. The free hemorrhage which occurred was the result of the injury to the branches of the internal maxillary artery, some of which are quite large, and the spontaneous cessation of the bleeding was no doubt due, in a large measure, to the fact that the vessels were wounded by the fracturing of the bones, rather than by the contact of the ball. In this event they would be torn across or lacerated, and would therefore be placed in a very favorable condition for closure under the influence of the natural processes which attend the suppression of hemorrhage after the wounding of arteries of small calibre. Gunshot wounds of vessels are, as a rule, unaccompanied by dangerous hemorrhage, owing to the fact that the wound is lacerated in its nature—this condition, however, which is so extremely favorable to the prevention of *primary* hemorrhage, contributes largely to the production of *secondary* hemorrhage, by reason of the greater amount of suppuration which follows wounds of this character. The fatality in gunshot wounds of the jaws is attributed to the occurrence of secondary hemorrhage, and its prevention and treatment are therefore of great importance. Our late civil war furnished some valuable experience upon this point, in the large number of cases which came under the observation and care of our surgeons, and which will be referred to when we come to consider the treatment of these lesions.

Your attention is directed, in the next place, to the extensive destruction of bone produced by the projectile, which is described by the patient to have been a small rifle ball. This statement is confirmed by the appearance of the cicatrix marking the point of entrance, which, after making due allowance for the contraction of the tissues, you will observe is quite small. The wounds of soft and hard structures, produced by the modern arms of precision, are in marked contrast to those which resulted from the use of the old musket. The ball thrown from the latter was round, the range of the arm was limited, and, as a result, the ball frequently lodged in the parts without causing much laceration or comminution. Owing to the conical shape of the projectile now employed, and the greater velocity imparted to it when projected from the modern rifle, much greater destruction ensues, the soft parts being extensively lacerated, and the bone comminuted and splintered. In this case, the soft parts have fortunately escaped serious wounding, and the deformity which so frequently attends gunshot wounds of the face, entailing loss of tissue, and unseemly cicatrices, is absent. Here the bones have sustained the greatest injury, the ball tearing its way through with great velocity, and crushing

the bones with which it came in contact. According to the table of one hundred and fifty cases, prepared by Dr. Geo. W. Norris, of this city, and published in the *American Journal of the Medical Sciences*, for January, 1842, non-union and false joint in the inferior maxilla, appear to be quite rare, when compared with their occurrence in other bones, only two cases being reported. (Heath.) It is to be remembered, however, that this table contains instances of non-union following injuries other than those caused by fire-arms. If cases were collated in which the causes of the fracture in which no union occurs were gunshot wounds, the proportion would undoubtedly be larger, since these injuries are almost always attended by two conditions, which are favorable to the production of this lesion, viz: comminution, with subsequent removal of the spiculæ of bone by suppuration, and necrosis of the ends of the fragments. The remarkable tendency, however, exhibited on the part of the inferior maxilla to reproduction of bone after loss, inclines us to accept the occurrence of spurious articulation in this bone as infrequent. Rokitsansky, in his "Pathological Anatomy," (Vol. III, p. 121, Sydenham Society's Translation, 1855,) considers at length the causes concerned in the formation of false joints, through arrest in the development of the callus by means of which repair takes place after fracture, and he also describes two forms of unnatural joint which follow fracture. "One more or less resembles a synchondrosis, the other is like a diathrosis, and is accordingly, in its proper sense, a new joint. In the former case, the fractured ends of the bone are held together by a ligamentous tissue. Either a disc of ligament, the thickness of which may vary, is interposed between them, and allows of but little movement, or, as occurs when there has been loss of substance, either from injury, from considerable absorption of the fractured ends or otherwise, ligamentous bands connect the fragments, and allow them to move freely on each other." This ligamentous tissue he designates as the "intermediate substance," and is the result of the arrest in the metamorphosis of cartilage to the secondary callus. "In the second variety, a ligamentous articular capsule is formed, and is lined by a smooth membrane which secretes synovia; the fractured surfaces adapt themselves to each other, and become covered with a layer of tissue, which is fibro-ligamentous, or more or less fibro-cartilaginous, or which resembles, and sometimes, according to Howship, really is cartilage; they may articulate immediately with one another, or may have between them an intervening layer of ligament, which corresponds to an inter-articular cartilage, and their movement upon each other is more or less free, according to the size of the articular capsule, and the form of the articulating surfaces." From these descriptions, you will be able to comprehend the nature and construction of a false articulation, and your interest will be excited in

the contemplation of the means adopted by nature, when, by reason of any conditions, her processes are interrupted. In the case before us, the character of the joint formed is the same as that described in that form of the first variety, in which, owing to the loss of substance, the fragments are connected by ligamentous bands, by means of which free motion is afforded. The formation of this articulation is a fortunate circumstance for the patient, since it permits free movement of the jaw, and also gives him control, to a certain extent, of its movements. The facility with which false joints are apparently formed, and the completeness observed in their construction, have suggested to surgeons their formation as an operation proper to be performed for the relief of the distressing conditions which attend permanent closure of the jaws. This subject will claim our attention when we come to study the pathology and treatment of ankylosis, or immobility of the jaw.

Lastly, we have to examine into the condition of facial paralysis, which exists in this case. You have sufficiently advanced in your anatomical studies to know that the facial muscles, or as they are frequently designated, the muscles of expression, receive their nervous supply from the *portio dura* of the seventh pair of cranial nerves. Paralysis of these muscles implies therefore a lesion of this nerve, which may occur either within the cranial cavity, or after its emergence at the stylo-mastoid foramen, which may be described as occupying a position just behind the lobule of the ear. The nerve emerging at this point, passes forward through the substance of the parotid gland, *crosses* the external carotid artery, and *behind* the ramus of the inferior maxillary bone, divides into two primary branches—the temporo-facial and cervico-facial. These branches divide and subdivide, distributing filaments to the muscles of the external ear, the frontal and superciliary muscles, the sphincter muscles of the eye, the dilators and compressors of the nose, the sphincter muscle of the mouth, the elevators and depressors of the lips, to one of the muscles classed among those of mastication, the buccinator, and to certain muscles of the neck. It is essentially a nerve of motion, having no sensitive filaments, and conveying no sensitive impressions. Its section therefore does not compromise the power of sensation resident in these parts, and which is derived from another source, the terminal branches of the fifth pair.

Although the statement just made is strictly true, viz: That it has no sensitive filaments, and does not convey sensitive impressions; still it has been shown, by experiment, that it possesses a certain degree of sensibility by reason of its connections with the branches of the fifth pair. It is clearly evident, in the case before us, that there has occurred a lesion of the facial nerve, and from an examination of the wound of

exit, corresponding to the position of the nerve in the substance of the parotid gland, and in front of the external carotid artery, we are warranted in the conclusion that the lesion has taken place at this point, and that the trunk of the nerve has been severed. This can be confirmed by an interrogation, as it were, of the structures supplied by this nerve.

The patient is unable to produce the transverse and vertical wrinkles in the forehead, which are developed by calling into action the frontal portion of the occipito-frontalis and the corrugator-supercilii muscles. When asked to close his eye, you will observe that he cannot accomplish it; the sphincter power of the orbicularis palpebrarum being entirely lost, the lower eyelid does not embrace the surface of the globe as it should do normally, but has fallen away, and as a result of this, an overflow of the tears takes place. This exists to such a degree as to interfere with his calling, and has compelled him to abandon it, the tears dropping constantly upon his work, and causing damage. If he draws down the upper lid, it is at once elevated by the action of the levator palpebræ muscle, which receives its nervous influence from the motor oculi, or third pair of cranial nerves.

Observe further the action which takes place when the patient is requested to close the eye. Instead of approximating the two lids, as would be done normally, he turns the ball upward and rolls it beneath the upper lid, thus concealing from view the entire iris. The same action takes place when the surface of the globe is irritated, and is accomplished by the action of the superior rectus muscle, supplied as the levator palpebræ, by the motor oculi nerve. He cannot dilate or compress the right naris, and it has a relaxed appearance. Observe what occurs when asked to take a drink of water from this goblet. There is an inability to grasp the edge with the right side of the mouth, and as a consequence, the water runs out of the corner. In taking food he grasps it by the left side of the mouth, and retains it on that side; the saliva dribbles away from between the lips; he is unable to render tense the buccinator muscle. Thus we have been able to demonstrate motor paralysis of the superficial muscles of the face, the result of the division of the facial nerve. That sensation is not impaired by the section of this nerve, we can show by pricking the surface with a pin. When this is done he complains of pain, clearly proving non-impairment of sensation.

We cannot at this time discuss the important question of the treatment of gunshot wounds of the jaws. The patient has presented himself for the purpose of having adapted, if possible, an artificial denture, by means of which the deformity will be relieved, and the further displacement of the inferior maxilla prevented. We will have an impression of his mouth taken, and determine as to the feasibility of providing a denture which will accomplish the desired objects.

NASO-PHARYNGEAL POLYP.

Through the kindness of Professor Barker and Dr. Hartlevan, a graduate of the college, we are permitted to examine to-day a very interesting case. The young boy before you gives the following history:—

“R. D—, æt. 15, is a resident of this city. His father died of phthisis fourteen years since, one year after the patient's birth. His mother is now in good health. During the past six or seven years his health has not been good, he having suffered from what was regarded as nasal catarrh. Latterly he has had a constant purulent discharge from the left nostril, and frequent attacks of epistaxis. The hemorrhages have, at times, been very copious, and have reduced his strength very much. In the supine position he experiences great difficulty in respiration, and during sleep snores very loudly. About two months since, he noticed a swelling over the left superior molar teeth, which has gradually increased in size, and which was followed in short intervals by swelling of the side of the face and slight protrusion of the eye.”

Let us now examine the patient, and ascertain, if possible, the nature of the affection from which he is suffering. You readily recognize the external swelling and protrusion of the eye alluded to in his history. On introducing the finger into the mouth, and passing it along the alveolar margin of the left superior maxilla, there can be detected a firm and elastic mass occupying the region over the molar teeth, which, projecting back, passes up into the zygomatic fossa. In front, the canine and incisive fossæ are intact; the palate process of the superior maxilla, and the horizontal plate of the palate bone, forming the hard palate, are in proper position. On looking into the mouth you will observe that the soft palate on the left side is forced downward, and encroaches upon the opening into the pharynx—the finger feels a resisting mass behind the palate. Apparently the nasal cavities are free; on passing a probe into the left nasal cavity it meets with no obstruction until it reaches the posterior nares, where it comes in contact with a mass which opposes its further progress. The right nasal cavity is free. The voice is nasal, and somewhat indistinct.

Having now made a careful examination of this case, it remains for us to determine the location of the growth, and to decide in reference to the treatment proper to be adopted. The diagnosis is not without difficulty, as certain symptoms are present which apply equally well to morbid growths originating in the different cavities connected with the face; our diagnosis, therefore, must be made, as it were, by exclusion.

At first sight it would appear that the growth is located in the cavity of the antrum, and there are certain symptoms which would seem to confirm this opinion. On the other hand, there are symptoms wanting which are regarded as essential in indicating the occupation of this cavity by morbid growths. One particular symptom, upon which Langenbeck, the

distinguished German surgeon, lays great stress is, obliteration of the canine fossa; in this case it is distinctly intact. Growths occupying the antrum are rarely accompanied by hemorrhage into the nasal cavity. Attacks of hemorrhage have repeatedly occurred in this case. Again, tumours of the antrum escape from the cavity by the route which offers least resistance, and hence they push through the anterior wall upon the face, into the nasal fossæ through the internal wall, or into the cavity of the orbit, through the orbital plate, rather than through the external and denser wall into the zygomatic fossa. In this instance we find the growth occupying the zygomatic fossa, and forcing its way forward into the mouth. Protrusion of the eye and swelling of the cheek do not belong exclusively to the symptoms denoting growths in the antrum, and may therefore be considered in connection with growths originating in other cavities.

The zygomatic fossa may suggest itself to you as the seat of the growth, and there are many symptoms present which are in harmony with this opinion. That it does occupy the fossa is apparent, but it appears to be forced into this space rather than to originate there, and, moreover, if we accept this cavity as the point of origin, we will find it difficult to account for its presence in the posterior nares. In explaining its presence in the zygomatic fossa, a like difficulty obtains to a less degree in regarding it as a polyp springing from the posterior nares.

We have yet left to consider a form of fibrous polyp, which is developed in relation with the base of the skull, and which, from the fact that it usually projects into the nose and pharynx, has been designated as the *naso-pharyngeal polyp*. It is of comparatively rare occurrence, and is described as taking its origin from the petro-occipital suture, the greater wing of the sphenoid bone, or the upper part of the spinal column. Usually, as stated above, it projects into the nose and pharynx; occasionally it separates the muscles of the pharynx, and passes into the zygomatic fossa and face. If you take a skull, and examine the relation of the parts involved, you will readily see how this can occur, and in the study of this form of polyp, you will find a close correspondence between the history and symptoms of their development and that presented in this case.

From a consideration of these points, you will conclude, therefore, that the diagnosis in this case is somewhat difficult, and as the nature of the operation to be performed will be determined by the decision arrived at in reference to the origin of the morbid mass, you will comprehend the importance of making a correct diagnosis.

Whatever may be the location of the growth, whether in the zygomatic fossa, or at the base of the skull, its removal involves a formidable operation—one not to be undertaken without due consideration and proper

preparation. The lad presents himself this morning, with the consent of his mother, to the performance of such operation as we may deem necessary. We would not be justified in resorting to an operation without explaining to his family and friends its nature and gravity, and we will, therefore, defer the consideration of the character of the operation, as well as the operation itself until a future clinic.

Leading Articles.

The Faculty of the Pennsylvania College of Dental Surgery acknowledge the reception of valuable specimens from the following gentlemen :

From Dr. W. C. Wardlaw, of Abbeville Court House, S. C., specimens of fossil bones and teeth, from the phosphate beds in that State.

From Dr. B. A. Muckenfus, of Charleston, S. C., some large fossil shark's teeth in a fine state of preservation ; the enamel showing the serrated edges as in recent teeth. These were also found in the same beds as the above.

From Dr. R. S. Whaley, of Newberry Court House, S. C., the jaws of a hog, 5 years old, of the Essex breed, raised by Dr. Langford, of Edgefield County, S. C. The animal from which they were taken weighed 501 pounds ; the peculiarity of the specimen is the enormous development of the tusks, the longest inferior one measuring $5\frac{1}{2}$ inches, and the superior ones 4 inches.

From Mr. George R. Welding, of this city, a superior second and third molar, united firmly by an abnormal development of the cementum ; they were extracted and presented to him by Dr. J. Marvis, of Clinton, Ill.

From Dr. J. D. Wingate, of Bellefonte, Pa., the upper and lower set of teeth, extracted from the mouth of a young lady, aged twenty years. The jaws were well developed, but the teeth are all exceedingly diminutive and mostly malformed ; the crowns of many presented the appearance of having been worn away, leaving a polished surface.

From Dr. B. L. Taylor, of Minneapolis, Minn., a number of human teeth, taken from an ancient mound, near Big Stone Lake, in that State. They are in a good state of preservation, notwithstanding their great age, and many of them show indications of having done good service in their day of usefulness.

From Mr. S. S. White, of this city, a set of impression trays, comprising thirty-one different sizes and forms. Many of the patterns are new, and present features which, combined with the excellent quality of metal and finish, will insure their acceptance by the profession.

To the above named gentlemen we tender our thanks for their favors. While we are grateful for their donations to the College, we feel greater pleasure in viewing the liberal spirit evinced, which shows that the

donors take more interest in placing rare and valuable specimens where they can be made serviceable to the profession at large, than by hoarding them up for personal gratification.

DENTAL ASSOCIATIONS.

We are glad to find our professional brethren in Kansas are alive to the advantages of associated effort for the advancement of the true interests of our profession.

Although dental societies, as they are now constituted, are of vast benefit, it appears to us that if they were organized upon a more systematic basis they would be far more useful. Our idea of this matter is that there should be county or district societies under the supervision of a State society, and State societies again subordinate to a United States organization.

New discoveries and subjects of general interest or of value emanating in the several county or district societies would be reported to the State Association, there examined, discussed, and valuable gleanings of the transactions of these several societies could be published for circulation. And further, all subjects of sufficient importance originating in the State societies could become subjects of discussion in the National Organization; and from this source would flow back to each county or district within its entire limits the sum or conclusions of such discussion, thereby giving every member of a county or district society the advantage of a prompt and reliable knowledge of all matters of interest within the scope or jurisdiction of the United States organization.

This system of organizing dental associations may at first sight appear complex and impracticable, but in practice it would be simple and harmonious in its actions.

We trust our readers will weigh this matter well in all its bearings, as we fully believe such a system will be eventually adopted, and that it will work infinitely better than the present disjointed and independent associations.

"THE TIMES" AS AN ADVERTISING MEDIUM.

We desire to direct the attention of our readers to the advertisement pages of this number. As will be seen, they contain advertisements from the leading manufacturers and dealers in dental goods, importing and manufacturing chemists, book publishers, importers and manufacturers of optical and philosophical instruments, engravers, insurance companies, &c.

THE TIMES presents itself as an available medium for communication to the entire dental profession of the country, from whom communications on dental and allied medical science are invited. Contributors are requested to write *legibly, in ink, and on alternate pages.*

Dr. J. J. Ross, of Memphis, Tenn., sends us a photograph of a Dental Instrument Stand, of his invention, accompanied by a description. The body of the stand rotates upon the supporting column, contains four drawers, and on the top are eight inclined receptacles for instruments. It appears to be a useful and convenient article.

Proceedings of Societies.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

At a meeting of the Pennsylvania Association of Dental Surgeons, held March 15th, 1871, DR. SPENCER ROBERTS presented two specimens of teeth, one a lower molar, with three well-defined roots.

Dr. WM. TRUEMAN exhibited numerous microscopic specimens of oxychloride of zinc.

The subject of the evening was then taken up for consideration.

OXYCHLORIDE OF ZINC.

Dr. JAMES TRUMAN remarked that the subject was somewhat trite, but it was occasionally well to review matters which had been tried and discussed, to mark progress. He had modified his views on oxychloride of zinc very much in the past few months. A general review of the field of operation had forced him to the conclusion that for the purpose of capping nerves it must be considered of doubtful value. That pulps had been and would continue to be preserved by this means for years if not indefinitely, is certain. The success or non-success is dependent on so many constitutional conditions that an indiscriminate use of it as a capping is out of the question. In sifting his correspondence from different portions of the world, he had come to the conclusion that in those sections where a low degree of vitality had the ascendancy, failures were almost universally reported. Where a greater degree of general health had been maintained, the reverse is the case. As a rule, more failures will be noticed in cities than in country practice. It therefore becomes important to discriminate in its use, if it is used at all. Even under the most favorable conditions an uncertain result will always follow the operation.

Dr. WERT remarked that everything in our profession appeared to have its day. Oxychloride has proved no exception to this. Each new theory induces, in some persons, extravagant statements that further investiga-

tion proves unfounded. He had used this material some ten or twelve years ago, when first introduced, but he found it was soon generally condemned. About the time he had made up his mind to abandon it, it was again lauded for the purpose of capping pulps. He had again given it a fair trial, and had arrived at the conclusion that, in many cases, it could not be depended on. He had recently found the pulp dead in a lateral tooth after a three months' test. He had also filled two inferior molars with it where the pulps were not exposed. In a few days the patient returned, suffering excruciatingly. From the discolored appearance of the teeth, he supposed the pulps were destroyed. In a lateral tooth, treated the same way, the patient suffered severely. He removed the filling and opened into the pulp. It was very much congested. He had had a percentage of success, but it was not equal to that reported by others.

Dr. JAMES TRUMAN said a wise discrimination should be made between capping pulps and filling over thin layers of dentine. The subsequent conditions are entirely different. The caustic properties of the chloride of zinc will alike affect the pulp, exposed or non-exposed; but as the relations to surrounding parts are not the same the results cannot be similar. As Dr. Pettit justly remarked, at a former meeting, the irritation through the thin layer will act on the pulp and congestion will ensue. The swollen pulp pressing against the hard walls, with no opportunity for escape, will suffer destruction. With an opening, the case is different. The pulp expands in a similar manner; but the pulp extrudes from the opening and in due time the congested condition subsides. We should, therefore, not confound these two conditions, as they are unmistakably different. There must always be danger in filling over thin layers. It may possibly occur that the irritation will not extend to the pulp, but there must always exist a degree of uncertainty in regard to it.

The same law of irritation holds good with thermal influences. Pulps may be destroyed, through a very thick covering of dentine, by the continued action of cold and heat. In this case, as in the other, the destructive process is first communicated to the contents of the tubes and continued to the main body of the pulp.

He had found oxychloride of zinc a valuable substitute for creasote in filling roots. The antiseptic properties of the chloride of zinc fulfills all the requirements of creasote, with the additional advantage of more effectually closing up the canal. It may be introduced on the first piece of gold. Some prefer, in minute canals, to use floss silk saturated with it. In either case it should be used very thin.

Dr. R. HUEY remarked, that on the first introduction of this material for capping he was extravagantly in its favor, using it indiscriminately. In twenty-five teeth, where the pulp had been recently exposed, but three

proved failures ; but where the exposure had continued for a lengthened period, capping generally resulted disastrously. In two of this character alveolar abscess supervened. He had, therefore, arrived at the conclusion, that capping, to be successful, must be applied to recent exposures.

For the treatment of sensitive dentine he is very partial to oxychloride of zinc, especially in those cavities found at the necks of teeth.

In bleached teeth, he filled the main portion of the crown with this material and then finished with gold. He considered this much better than filling the entire cavity with metal. It gave a better color to the tooth and lessened the danger of any future discoloration from the root.

DR. WM. TRUEMAN said, that while preparing microscopic slides, it had occurred to him that the cement used for this purpose might be made useful in the mouth as a capping, where the pulp is not entirely exposed, or to act as a non-conductor in large, deep cavities. It is prepared by heating Canada balsam until it becomes quite hard and brittle. It is then dissolved in chloroform or benzole, and sufficient oxide of zinc added to make it of a creamy consistence. This cement hardens very rapidly, requiring neither heat or pressure in its application, and contains nothing likely to act as an irritant except the cold produced by the rapid evaporation of the solvent.

He had found in "*Watt's Dictionary of Chemistry*," Vol. V. p. 1070, the following formula for a cement used in Paris for filling decayed teeth : Three parts oxide of zinc to one of pulverised glass. These are mixed with fifty parts sol. chloride of zinc, sp. gr. 1.5 or 1.6, to one part borax, dissolved in the least possible quantity of water. This he believed to be identical with "Killnitz diamond cement."

The time required for the oxychloride to set, depends upon the strength of the chloride and the purity of the oxide. The best English oxide becomes hard in a few seconds when mixed with a saturated solution, or the deliquesced salt. When diluted with eight volumes of water, it required from twenty to thirty minutes to acquire the same hardness.

He had but little confidence in capping exposed pulps as a general practice. He had tried it in a number of cases, one, at least, being successful. One was capped March 4th, 1869 ; the pulp was exposed and bleeding. The cavity aprox. surface, sup. cen. was entirely filled with oxychloride and not disturbed until November 12th, 1870, when the filling, having become quite imperfect, was entirely removed. The cavity was prepared and a gold filling inserted without any severe pain. There was sufficient of this, however, to prove the pulps still possessed vitality. The original point of exposure was completely closed up.

DR. BONWILL had not had much success in capping with this material. It is not uncommon for pulps to retain their vitality for long periods beneath

fillings. In proof of this, he instanced the case of a patient from California, where the pulp had been exposed beneath an amalgam filling for eight years, while an adjoining tooth, treated at the same time, required removal in a few days.

DR. MILLARD had treated sensitive dentine with oxychloride and met with good results; out of twenty-five cases, but three had proved failures. This was attributed to the thinness of the layer of dentine over the pulp.

DR. SPENCER ROBERTS presented the following formula for the manufacture of oxychloride of zinc, which he said had proved of very excellent character and equal to any now for sale.

Oxide of zinc, 28 dwt. ;

Silex, 7 “

Glass of borax, 6 grs.

The oxide of zinc to be calcined. The silex and borax should be ground fine and then combined with the oxide.

The solution is made by mixing four parts of chloride of zinc with one part of water.

FILLING PULP CANALS.

In answer to a question of DR. BONWILL in regard to the percentage of success in filling roots, DR. JAS. TRUMAN remarked that he considered that question answered long ago. The results obtained in the past quarter of a century, by others as well as himself, justified him in asserting that, with proper manipulation, it was nearly absolute in its beneficial results. From constitutional causes there would be failures in the success of the preliminary treatment, but he considered a root once thoroughly filled to be effectually preserved from inflammatory conditions. In proof of this, we need only refer to the results obtained in different classes of teeth and roots. We find the largest percentage of failures in roots containing minute canals. It is rare to find the periosteum of the palatine root becoming diseased, while the buccal are very generally affected. So, also, the anterior root of the inferior molar. The same result follows the treatment of the superior bicuspid, caused by filling but one canal, forgetting that these teeth have invariably two roots and two pulp canals. In his judgment, no treatment had ever been instituted to be compared in degree of success to that of the destruction and extirpation of the pulps and filling the roots.

DR. BONWILL said he believed he had saved 95 per cent. of the teeth he had treated by extirpating the pulps and filling the roots. He could not see, therefore, any advantage to be derived from adopting a course of treatment that was at least open to many doubts.

He presented specimens of teeth filled many years ago. The crowns eventually breaking off necessitated their removal. These were filled

thoroughly to the extremity of the foramen and no subsequent trouble was experienced.

He had filled canals in the same mouth, but different teeth, with tin, cotton and gold, and could see no difference in results in either. He founded his success on immediate treatment, but does not fill permanently at this period. He extirpates the pulp thoroughly whilst still slightly sensitive at the apex, and then fills with cotton impregnated with creasote, the object being to exclude air and saliva. He finishes the crown with gutta percha. The canal is not dried until the preparations are completed to insert the temporary stopping. He regarded this immediate treatment the best, as the blood furnished a protection to the parts.

DR. WM. TRUEMAN had been compelled to apply arsenic to pulps that had been capped and remained comfortable for a long time. In one case after two years. He was not willing to believe that failures, either in capping, destroying and extirpating pulps, were positive proofs of bad manipulation. The patient's health and habits had very much to do with our success, even in the simple and mechanical operation of filling. With all the care and skill we can bring to bear upon some patients, their teeth very rapidly run into abscess and require extraction. It would seem almost useless, in such cases, to attempt any treatment at all.

He inquired whether, in the opinion of members, there was any danger in allowing pulps to remain a week or ten days before attempting removal?

DR. BONWILL considered any delay in removing the pulp endangered the tooth. Decomposition may produce periosteal inflammation.

He did not fear any injurious results supervening from a small quantity of blood that might exude from torn vessels. As the surgeon secures the best results from binding up the wound in its own blood, so, he considered, the same effect is produced in this instance. Any laceration will heal by first intention, when immediately excluded from the air and saliva.

DR. JAMES TRUMAN remarked that the danger of allowing pulps to remain for the sloughing process was so great that it could not be advocated with any degree of safety. The decomposition of animal tissue in a confined cavity must result in irritation to all sensitive adjacent tissue. This is true in theory and is sustained by practical results. It is rare that the removal of decomposed pulp fails to produce periosteal inflammation. It is, therefore, important to remove the pulp as speedily as possible after its destruction by arsenic, and then fill temporarily to exclude the air and fluids. It seemed to him that this precaution was not sufficiently attended to. The atmosphere in contact with an abraded surface is one of the most powerful irritants, and should be carefully excluded until such time as the canal can be filled permanently.

DR. WM. TRUEMAN thought his success in allowing pulps to remain warranted him in continuing the practice. There was far less difficulty in their removal, less pain to the patient, and as far as his experience had gone, no greater liability to after trouble.

He did not approve of attempting to fill the pulp canal while blood was still exuding from the lacerated vessels. There is great danger of its being forced through the foramen when the filling is inserted. In appropriating general surgical principles to our specialty, we must remember we have peculiar organs to deal with. A course of treatment, the best for a lacerated hand, may not answer as well when applied to a lacerated pulp, confined by the hard, unyielding walls of an ivory box, and so far removed from our observation that we can only guess at its actual condition.

DR. WERT said, the sooner the pulp is removed and the tooth filled, the less trouble, in his judgment, will be experienced. Inflammation is almost certain to supervene if it be allowed to remain.

He had made use of the oil of cloves for about six years as a substitute for creasote in the destruction of the pulp. The disagreeable taste and odor of the creasote led him to make use of the oil. He had found it to answer every purpose, and was equally successful in his results. In the application of arsenic, he saturates the pledget of cotton with the oil, and takes the ordinary quantity of arsenic and applies it to the pulp, sealing up in the usual manner.

Tr.

THE AMERICAN DENTAL ASSOCIATION.

The eleventh annual meeting of the American Dental Association, will be held at White Sulphur Springs, Va., commencing on Tuesday, the first day of August, at 10 A. M. The following facts are condensed from a pamphlet by Prof. Moorman, resident of that place:

White Sulphur Springs is situated in Greenbrier County, on the western slope of the great Apalachian chain of mountains, in latitude $37\frac{1}{2}^{\circ}$, longitude $3\frac{1}{2}^{\circ}$ west from Washington. These springs are at the present terminus of the Chesapeake and Ohio Railroad.

The traveler by rail to White Sulphur, *from any part of the country*, must pass through the town of Staunton. From any portion of the *east, north and west*, Baltimore and Washington are points in the route to the Springs. At Washington, take the Orange and Alexandria road to Gordonsville; then the Chesapeake and Ohio to White Sulphur, *via* Staunton.

Those visiting White Sulphur from the *south*, have a continuous line of railroad, either by the way of Richmond, Va., or Knoxville, Tenn

Persons taking the Knoxville route, go by the Virginia and Tennessee Railroad to Lynchburg; then the Orange and Alexandria road to Charlottesville, and then the Chesapeake and Ohio to the springs. Those going by the Knoxville route, will find a daily line of stages at "Montgomery White," running to White Sulphur, a distance of 65 miles.

The accommodations at White Sulphur seem to be ample. The hotel building "covering more than an acre of ground." The dining room conveniently seats 1,200 persons.

The committee appointed to secure reduced fare, to and from that place, are actively engaged, and will be heard from soon.

M. S. DEAN, *Secretary*.

THE CONNECTICUT VALLEY DENTAL ASSOCIATION.

The Connecticut Valley Dental Association met in North Adams, Mass., June 9th, at Grand Army Hall, the President, Dr. A. F. Davenport, of New York, in the chair. About twenty-five members were present.

The question, "CAUSE OF DECAY IN APPROXIMAL SURFACES OF THE TEETH, CAN IT BE PREVENTED?" was discussed.

DR. DAVENPORT attributed the cause of decay to the lodgment of food between the teeth, and the consequent acid fermentation. He thought the brush and floss silk the best preventive, and was satisfied of their efficiency from observation and experience.

DR. JONES believed the crowded condition of the teeth a fruitful cause of decay, and advised, in many cases, the removal of the six-year molars.

DR. ANDERSON was no believer in the file for the removal of caries; he preferred a contour filling.

DR. SEARLE thought the low ebb of vital forces of the patient invited the action of chemical forces to promote caries, and in no possible way could we ever prevent approximal decay; its cause is traceable to parents and grandparents.

DR. HOWLAND said, the power of resistance to decay is owing to the density of the tooth structure—the more dense the tooth, the less liability to caries; he believed thermal changes and acid secretions broke down enamel, led to exposure of dentine and consequent decay; and recommended thorough cleanliness by the use of a quill toothpick and brush.

DR. MILLARD believed the cause of decay dates back of the birth of the patient, and is traceable to transmitted syphilis, consumption and scrofula.

DR. HURLBUT attributed the cause of decay to mechanical, chemical and deficient vital forces, the vital being the most prolific cause; he did not believe it could be prevented, only retarded.

DR. SEARLE believed the vitiated condition of the saliva and mucus to be a cause of decay, and uses washes to neutralize and make normal those secretions.

DR. BEALS thought constitutional causes had much to do with caries.

The second subject discussed was, "OPERATIONS ON THE TEETH DURING GESTATION."

DR. BARNES read an interesting and instructive essay on this subject. Speaking of the tendency of women to lose their teeth during this period, he said: The degenerating effects of stimulating food and drinks, the want of light, pure air, proper ventilation, exercise, and our artificial mode of living, are among the causes which weaken vitality. Mothers should have in view the well-being of their children, who are so soon to become the fathers and mothers of a future generation, and should understand the kinds of food necessary, not only for the preservation of their own teeth during this period, but to secure for the child a strong frame, a healthy denture and vigorous constitution. He also spoke of the importance of dentists so thoroughly understanding their profession as to be able to prescribe constitutional as well as local treatment.

DR. MILLARD believed nitrous oxide gas could be safely given to such patients, but should hesitate in giving ether or chloroform after a certain period, as those agents not only relax the voluntary, but the involuntary muscles; he thought it eminently proper for a dentist to know the condition of a patient, so as properly to perform operations. It was the general opinion that operations upon the teeth during gestation could be safely performed by proper care, but should be limited to necessity.

In the evening, the subject, "PYROXILINE AS A BASE FOR ARTIFICIAL TEETH," was discussed.

DR. PARMELE, of Hartford, exhibited a plate of this kind which he had worn himself; he believed it to be lighter, thinner and more durable than rubber.

Drs. A. F. Davenport, F. Searle, S. F. Howland, H. W. Clapp and W. H. Jones, were chosen delegates to the American Dental Association, which meets at White Sulphur Springs, Va., in August.

SOUTH CAROLINA STATE DENTAL ASSOCIATION,

The annual meeting of the South Carolina State Dental Association, was held in Charleston, on the 10th, 11th and 12th of April. The following gentlemen were elected to serve for the ensuing year:

WM. C. WARDLAW, Abbeville, S. C., *President*.

THOMAS T. MOORE, Columbia, S. C., *First Vice President*.

B. A. MUCKENFUSS, Charleston, S. C., *Second Vice President*.

THEODORE F. CHAPLIN, Charleston, S. C., *Corresponding Secretary*.

O. P. BOND, Marion, S. C., *Recording Secretary*.

W. S. BROWN, Charleston, S. C., *Treasurer*.

THE AMERICAN DENTAL CONVENTION.

The seventeenth annual meeting of this Association, will be held at Saratoga Springs, N. Y., on Wednesday, August 9th, 1871. *All practicing dentists in good standing* are entitled to the privileges of the convention. Arrangements will be made for the display and exhibition of dental materials and appliances of all kinds, also for clinical operations during the entire session.

Dentists and others desirous of exhibiting instruments, materials or improvements in any department of dentistry, are particularly invited to present them as early in the session as possible, and to notify the committee of their intention to do so.

As August is a very busy month with hotel-keepers, it will be advisable for those intending to be present to notify the committee of their intentions, at 25 West Twenty-third Street, New York.

Efforts are being made to secure a reduction of fare by rail and steamboat.

J. G. AMBLER,	}	Committee of Arrangements.
J. S. LATTEMER,		
W. B. HURD,		
J. S. SMITH,		

KANSAS STATE DENTAL SOCIETY.

The Dentists of this State met in convention at Lawrence on May 2d, 1871, and organized a State Dental Society. Present: Drs. W. H. Marvin and A. M. Callahan, of Topeka; Dr. J. H. Sawyer, of Atchison; Dr. E. C. Fuller, of Fort Scott, and Drs. J. B. Wheeler and J. D. Patterson, of Lawrence.

A permanent organization was effected, named 'The Kansas State Dental Society.'

The code of ethics adopted was that of the American Dental Association; constitution and by-laws the same as that of representative societies in other States.

Dr. J. B. Wheeler was elected President; Dr. W. H. Marvin, Vice-President; Dr. J. D. Patterson, Recording Secretary; Dr. E. C. Fuller, Corresponding Secretary; Dr. J. H. Sawyer, Treasurer. Dr. E. C. Fuller was elected delegate to the American Dental Association for 1871.

A vote of thanks was tendered Dr. Marvin for inaugurating the movement for organization.

The first semi-annual meeting will be held at Topeka, commencing on the 12th of September, 1871; annual meeting at Atchison, May 2d, 1872.

By these means the profession in the State of Kansas are placed on a

footing with dentists in the older States. A cordial invitation is extended to the profession, especially in our own State, to co-operate in attaining its objects. The Secretary was directed to furnish a report of this meeting to the leading dental journals published in the country."

J. D. PATTERSON, *Recording Secretary.*

THIRD ANNUAL SESSION OF THE STATE DENTAL SOCIETY OF PENNSYLVANIA.

REPORTED BY C. H. BAGLEY, D. D. S.

The State Dental Society of Pennsylvania convened in Spring's Hotel, Gettysburg, on Tuesday, June 13th, at 10 A. M., the President, DR. McCALLA, in the chair.

After the transaction of the general business of the Society,* and DR. McCALLA had read his address as retiring President,

DR. BARKER read an essay on "IRREGULARITY OF TEETH, CIRCUMSTANCES FAVORING IT, AND SUGGESTIONS ON ITS PREVENTION AND TREATMENT." The essayist held the opinion that a retrograde metamorphosis is going on in human teeth. To obviate this, there must be improvement in the mode of living, the use of more substantial food, and from the time of the appearance of the deciduous teeth the children should be under the care of an educated dentist, so that when the permanent teeth begin to erupt they may be properly guided, and a regular arch result. As a rule, the first permanent molars should be extracted to make room for the succeeding teeth; for the jaws of the Anglo-Saxon race are shortening, and no longer have room for thirty-two teeth. Irregularities are corrected after the removal, when necessary, of one or more teeth, by means of rubber bands and ligatures. The Dr. illustrated his method by models and cases in the mouth. In each case we must study the law of forces. He never attempted a case until the patient was anxious to have the irregularity corrected, and then lost no time, as was the case when he employed plates. The principal advantage of this method is simplicity. A tooth may be elongated by tying a ligature at the margin of the gum.

DR. ESSIG described his method of correcting irregularities, by means of a band of platina gold passing in front of the arch, and fastened to caps over the molar teeth, with buttons on the outside, to which are fastened ligatures passing directly to the teeth to be moved—the position of the button determining the direction of the force. Black rubber should be

* In consequence of the length of the report, we are obliged to omit the general proceedings of the Association, and confine it principally to discussions on topics of general interest.—Eds.

used for the caps, on account of its strength and elasticity. When the distance is too small to obtain traction, we may perforate the band and pass the ligature through the opening to a button at some distance from the perforation. He claimed that in this way he can obtain the most direct force.

DR. ROBBINS thought that ligatures were frequently applicable, but they cannot always be employed. He objected to Dr. Barker's theory of extracting teeth. He considered that it was one cause of the contraction of the jaw. He should endeavor to expand the jaw, and in that way make room for the teeth. He did not use buttons on the bar, but tied the bands around it. Sometimes he used platina pins instead of buttons.

DR. WELCHENS read an essay on "DEFINITE HUMAN STRUCTURE," placing the dentinal structure of man at the apex of the pyramid of organized matter. He denied that there is a retrograde metamorphosis going on in the teeth of man; said there is power in the system to develop a perfect set of teeth; that the cause of failure is in the mode of living.

DR. BARKER defended his theory of a retrograde metamorphosis in dentinal structure. Evidences exist that there are no perfect sets of teeth, but in all we find decay and irregularity. We may improve the dentures in different ways, among others by the extraction of the six-year molars, a practice which will become the rule and not the exception. If we can improve the general health of parents, and secure increased nutrition of teeth, we can finally obtain perfect teeth. We should advise against the marriage of unhealthy persons.

DR. ROBBINS thought that we must preserve and improve the six-year molars until we get this better development.

DR. MOORE said, that the extraction of the six-year molar is only resorted to as the lesser of two evils, resulting from deterioration of the teeth and narrowing of the jaws. The effect of quality and cooking of food is shown in the change taking place in the teeth of emigrants from Europe to America. The human race was originally perfect, but has deteriorated from violation of proper laws of living.

DR. McDONNELL rose to defend the six-year molars. He hoped their preservation would become the rule. The reason they must so often be removed is, that the attempt to preserve them is not commenced sufficiently early.

DR. BARKER claimed, that because the jaws of Americans are almost universally narrow, it is nearly impossible to preserve all the teeth. The first molars are usually deficient, because, just before their development, there is a great demand for material for the osseous system, and as the teeth are only appendages, they suffer.

DR. GUILFORD entertained the opinion that when defective six-year molars are retained in the mouth, the other teeth suffer. He did not hope

for, but thought the time would come, when these first molars will all be extracted.

DR. GUILFORD read a volunteer essay on "MECHANICAL ABRASION OF THE TEETH," and recommended as a remedy, the wearing of a metal plate over the roof of the mouth, which shall also cover the abraded surface.

DR. MOORE was pleased with the views of the writer, but thought that rubber would be a better material than metal, on account of its non-conducting properties.

DR. GUILFORD replied, that the metal seemed to protect the teeth from irritation, notwithstanding its conducting power.

DR. ROBBINS remarked, that in these cases, we apparently find a chemical action set up along with mechanical, so that some teeth are worn away more than others. Formerly he made caps to cover the teeth, and protect them until nature had time to protect the pulp; but the objection to this was, that the caps collected food and secretions. He now preferred building down with gold, and using the mallet.

DR. McDONNELL preferred filling the teeth with gold, but did not always build down to the original length, on account of the expense; frequently he only filled flush with the edge.

DR. HOFFER had not seen any cases of extensive abrasion caused solely by mechanical action of chewing tobacco. Chewing, however, produces recession of gums, also warping of the jaws and disarticulation, and a disorder of the nervous system, which causes grinding of the teeth in sleep; and this grinding abrades the teeth. There may be some solvent in tobacco, which helps to cause the destruction, besides the mechanical attrition.

DR. GUILFORD said, that in one of the cases referred to in his essay, the teeth were very strong and dense. The reason why the lower teeth are not so much worn as the upper, is because they are narrower, and there is not so much dentine exposed.

DR. MOORE inquired whether the abrasion had been seen in women's teeth.

DR. WELCHENS replied affirmatively; always in strong, dense teeth; he thought that when there is no direct mechanical cause, it is because in these dense teeth there is less vitality, especially as people become more advanced in life.

DR. ROBBINS asked if continued abrasion had been noticed after the disuse of tobacco.

DR. WELCHENS had not noticed, but thought that this would be the case, on account of the diminished vitality caused by the use of tobacco.

DR. ELLIOTT had seen a case, where the teeth were worn away faster after, than before discontinuing the use of tobacco.

DR. ROBBINS has found that tooth structure breaks down faster after discontinuing the use of tobacco than before, and gave the case of a physician who had chewed tobacco for forty years, and then discontinued its use, after which his teeth were worn down very rapidly, and he was obliged to have them capped with gold. In the South, tobacco was not allowed to lie quietly in the mouth, as is frequently done here, but was kept constantly in motion, and abrasion was the rule, not the exception.

DR. HOFFER remarked, that smoking injures the teeth more than chewing; by the heat and undue stimulus recession of the gums is caused. When the teeth are capped and do not touch each other there cannot be mechanical abrasion. Mechanical abrasion would affect the molars more than the incisors, for the molars do the work, yet the incisors are usually the most abraded.

DR. MOORE in one case found that the teeth had been much decayed, but the decay had ceased, and what was naturally the softest, had become the hardest part of the tooth; the patient attributed this condition of the teeth to the use of tobacco which he had commenced as a remedy.

DR. McDONNELL remarked, that in those who use it, tobacco has more to do with the abrasion of teeth than any other cause.

DR. HOFFER said, that perhaps an acid, carried to the incisors by the tip of the tongue may cause abrasion. Asked if abrasion had not been noticed where no tobacco had been used?

DR. McDONNELL answered in the affirmative, but not to so great an extent.

DR. SMITH considered that abrasion was caused, not by the chemical, but by the mechanical properties of tobacco. Horses use no tobacco, yet we see their teeth worn down to the gums.

DR. YOUNG remarked, that the reason why the upper teeth are abraded more than the lower, is seen in the fact that the upper jaw is fixed, while the lower is movable; it is a case of hammer and anvil.

DR. WEBB read an essay on "ANÆSTHESIA," giving the mode of administration, the effects and theories respecting the mode of action of chloroform, ether and nitrous oxide.

DR. GUILFORD has used nitrous oxide principally. Considered it safer than ether or chloroform, but we must work rapidly on account of its evanescent effect. He did not give it when there was organic disease of the heart, phthisis, but would use it in any other case.

DR. McDONNELL deprecated the use of anæsthetics when they can be avoided. He believed some of his patients had been injured by them. The injurious effects may not be noticed at first.

DR. WELCHENS was of the opinion that nervous symptoms, such as Dr.

McDonneld had described, sometimes follow the extraction without the use of anæsthetics. The shock of the operation in most cases is more injurious than the effects of anæsthetics. When there is disease of the heart, he would as willingly give ether as perform any severe dental operation; for, in such a case, the patient cannot endure any shock. With the free use of water, recumbent position, and a proper mixture of ether and chloroform, he felt very safe.

DR. McDONNELD thought that the use of anæsthetics encouraged the unnecessary extraction of teeth.

DR. MOORE preferred ether, as it does not leave the system so much depressed as does chloric ether or chloroform. Nitrous oxide is too evanescent. He described a case in which the patient, after the use of ether and chloroform, began to sink. He applied mustard plaster, used artificial respiration, placed the feet in mustard baths, administered brandy internally, and the patient recovered. He thought anæsthetics were the causes of diseases which afterwards carried off the patient.

DR. WEBB would rather trust a qualified dentist than a physician to administer the anæsthetic. If, under the use of ether, we over-stimulate the cerebrum, we should give chloroform until we have excited the cerebellum. If unfavorable symptoms continue, defer the operation until another day. In the case described by Dr. Moore, the administration of nitrous oxide, water or gas would probably have antidoted the ether and chloroform.

DR. SMITH thinks that the general surgeon has the advantage over the dentist in the position of the patient.

DR. SMITH read an essay on "THE IMPORTANCE OF CORRECT DIAGNOSIS." On account of the lateness of the hour the subject was not discussed.

DR. ESSIG explained the use of Dr. Jack's matrices when filling approximal cavities in molars and bicuspid.

DR. ROBBINS called the attention of the Society to a new model of a double-headed steel mallet devised by himself, and gave his reasons for adopting this form and material. It may be used from one to three ounces in weight, with smooth, hard-tempered faces. Less weight of mallet and slighter force of blow are required than with any other material. Being concentrated, a light blow condenses the gold without being diffused over the jaw, causing less danger of congestion and periostitis. Mallets of steel and other materials have been used on intelligent patients and several dentists, some of whom were present. The verdict was usually in favor of the steel.

DR. PIERCE, having had lead and tin, wood, rubber and steel mallets used on the same filling in his own mouth, prefers the steel.

DR. McDONNELD having had the same experience agreed with Dr. Pierce.

The following officers were chosen to serve the ensuing year :

President—J. G. Templeton, of New Castle, from Lake Erie Association.

1st Vice-President—M. E. Gillespie, of Pittsburg, from Pittsburg “

2d Vice-President—J. M. Barrett, of Wilkesbarre, from Susquehanna “

Rec. Sec'y—C. H. Bagley, of Meadville, from Lake Erie “

Asst. Rec. Sec'y—C. B. Ansart, of Oil City, from Lake Erie “

Cor. Sec'y—S. Welchens, of Lancaster, from Harris “

Treasurer—J. McCalla, “ “ “

Censors—A. B. Robbins, of Meadville, from Lake Erie “

S. H. Guilford, of Lebanon, from Lebanon Valley “

C. G. Essig, of Philadelphia, from Odontographic “

D. S. McCoy, of Newville, from Cumberland Valley “

H. W. Arthur, of Alleghany, from Pittsburg “

EXECUTIVE COMMITTEE.

W. E. Magill, of Erie. E. M. Pierce, of Warren.

G. B. McDonnell, of Conneautville. J. G. Moore, of Lancaster.

J. Z. Hoffer, of Columbia.

PUBLICATION COMMITTEE.

C. H. Bagley, of Meadville. S. Welchens, of Lancaster.

J. McCalla, of Lancaster. W. N. Amer, of Lancaster.

J. D. White, of Pittsburg. G. T. Barker, of Philadelphia.

A. B. Robbins, of Meadville.

DELEGATES TO THE AMERICAN DENTAL ASSOCIATION.

J. H. Githens, of Philadelphia, Amos Wert, of Philadelphia.

F. Hickman, of Reading. W. H. Webb, of Lancaster.

G. B. McDonnell, of Conneautville. J. G. Moore, of Lancaster.

C. J. Essig, of Philadelphia. A. B. Robbins, of Meadville.

DELEGATE TO THE OHIO STATE DENTAL ASSOCIATION.

J. G. Templeton, of New Castle.

ESSAYISTS AND THEIR SUBJECTS FOR NEXT YEAR'S SESSION.

Dr. R. Huey, of Philadelphia, Discolored Teeth, and their Treatment.

G. W. Neidich, of Carlisle, Absorption of Alveolar Process.

G. B. McDonnell, of Conneautville, Operative Dentistry.

J. G. Moore, of Lancaster, Dental Pathology.

C. G. Essig, of Philadelphia, Mechanical Dentistry.

W. E. Magill, of Erie, Preservation of Children's Teeth.

M. E. Gillespie, of Pittsburg, Dental Ethics.

S. Welchens, of Lancaster, Public Address.

The Society adjourned, to meet in the city of Erie, on the first Tuesday of June, 1872.

THE LAKE ERIE DENTAL ASSOCIATION.

The proceedings of this Association arrived too late for preparation for this number of the *TIMES*. We regret it much, since the session seems to have been one of unusual interest.

We are always glad to notice the proceedings of the annual or semi-annual meetings of distant Societies, though in consequence of limited space it becomes generally necessary to condense them. We would be glad therefore, if secretaries of these societies would send us condensed reports for publication. They will receive early attention.

Book Notices.

The Principles and Practice of Dentistry, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism. By Chapin A. Harris, M. D., D. D. S. Tenth edition, revised and edited by Philip H. Anstin, M. D., Professor of Dental Science and Mechanism in the Baltimore Dental College. 8vo, pp. 800. Philadelphia, Lindsay & Blakiston, 1871.

We received a copy of the above too late for review in this number of the *TIMES*. From a hasty glance at the contents, we should judge it to be a very great improvement over *all* previous issues. We defer an extended notice of it until the October number.

Deutsche Vierteljahrsschrift, für Zahnheilkunde. Organ des Central-Vereines Deutscher Zahnärzte. Interimistisch redigirt von Ed. Mühlreiter; Zahnarzt in Salzburg, Nürnberg, 1870-'71. We have received the numbers of October and January of 1870-'71, of this valuable dental periodical. It is with great regret that we find in the October number, the valedictory as editor, of Dr. Ad. zur Nedden. This gentleman has had charge of this Journal for several years, and conducted it with such marked ability that it ranks, in our estimation, as the best on our exchange list. While we have felt it our duty, on several occasions, to criticise his strictures on American dentistry, and especially American dental teaching, we have always entertained great respect for him personally, and for his untiring labors in his profession in Germany. To him, more than any other man, is Germany indebted for a knowledge of the progress made in this country in everything pertaining to the profession. His extensive translations have kept his colleagues fully up to the American standard in practical points, and infused a spirit of advancement that has placed German dentistry second to that of no other country. We part with him from the editorial field with the hope that his labors in this direction will not wholly cease with his connection with the Journal.

The present and temporary Editor Dr. Ed. Mühlreiter, of Salzburg, is a gentleman every way competent, we should judge, to take permanent charge. He is well known to readers of German dental literature as an able writer. We wish our cotemporary all the success it merits under the new management.

Selections.

EXPERIMENTS ON THE EFFECTS OF ALCOHOL ON THE HUMAN BODY.

BY DR. E. A. PARKES AND COUNT C. WOLLOWICZ.

An important series of experiments on this subject has been made conjointly by the authors. Their object was to ascertain the physiological and dietetic effects of alcohol on the human body in a state of health. The plan of observation was as follows:—For twenty-eight days, a man, an intelligent, healthy soldier, remained on a diet precisely similar as to food and times of meals in every respect, except that for the first eight days he took only water (in the shape of coffee, tea, and simple water;) for the next six days he added to this diet rectified spirit, in such proportion that he took, in divided quantities, on the first day, 1 fluid ounce of absolute alcohol; on the second day, 2 fluid ounces; on the third day, 4 ounces; and on the fifth and sixth days, 8 ounces on each day. He then returned to water for six days, and then for three days took each day half a bottle (12 ounces) of fine brandy, containing 48 per cent. of alcohol. Then for three days he returned to water. There were thus five periods, viz., of water drinking, alcohol, water, brandy, water. And for ten days before the experiments were commenced, the man, a beer-drinker usually, abstained from any alcoholic liquid. The food taken was all weighed; it was the ordinary diet. The general results obtained may now be very briefly summed up. It would seem, first of all, that, other conditions remaining the same, the weight of the body is unaffected by the taking of alcohol. With regard to temperature, we are told “that the general result from all observations surprised us (the observers,) considering the numerous experiments on men and animals in which the temperature has been found to be lowered by alcohol.” The tendency, indeed, was rather in the opposite direction, especially with the brandy. The alcohol was, however, never pushed far, because the object was not to induce any narcotism, but to ascertain its dietetic value; and the discrepancy involved in the observations of Drs. Parkes and Wollowicz may be in part further explained by the fact that the individual experimented upon possessed a perfectly healthy resisting, and not a diseased or weakened organism. The diminution of temperature by large and narcotic doses is not disputed; all that our experimenters affirm is that with a small amount of alcohol and a good supply of food, the temperature is not diminished. The effects on the circulation described are very interesting. The pulse was not only more frequent and fuller when alcohol and brandy were used, but the increased frequency was persistent after the omission of the alcohol. The pulse had not reached in six days the point which was proper to it before the alcohol was given.

The first day of alcohol gave an excess of 4 per cent., the last 23 per cent. in the beats of the heart—that is, an excess of 13 per cent. as a mean of six days. This, on calculation, amounts to an excess in the daily work of the heart equal to lifting 15·8 tons one foot during the first two, and 24 tons during the last two days of the alcoholic period. On the fifth and sixth days after the alcohol was left off, when its elimination was complete, the heart showed in the sphygmographic tracings signs of unusual

feebleness; and when subsequently brandy was given, it was clear that it was acting upon a heart whose nutrition had not been perfectly restored. The observers say that it is evident that in the man experimented upon, the amount of alcohol the heart will bear without losing its healthy sphygmographic tracing is small, and it must be supposed that eventually some disease of the heart will follow the excitement induced by large doses of alcohol. The action on the kidneys of a moderate amount of alcohol is not marked; the amount of water eliminated is rather increased; no change takes place as regards the nitrogen when the ingress of nitrogen is constant,—certainly it is not diminished in amount. This conclusion is antagonistic to the observations formerly made on the point, which indicated that nitrogen is retained in considerable amount in the body under the exhibition of alcohol, which in this way increases assimilation, and when food is deficient saves the tissues from waste.

Little change is also effected in the phosphoric acid, the chlorine, and the free acidity of the urine. The elimination of nitrogen by the bowels was not lessened. The elimination of alcohol by the lungs was marked; indeed, a good deal must have been got rid of in this way,—by the skin considerable, by the kidneys slight. Drs. Parkes and Wollowicz think that, though not excessive at any one time, the exit is longer continued than Anstie and Dupre suppose.

Special note was taken of the effect of alcohol on digestion and appetite. It seems that in the man under observation some point near two fluid ounces of absolute alcohol is the limit of useful action on appetite. It might have been found to be less had the experiments been continued. Further, although large doses interfered with the appetite, they did not interfere with or retard primary digestion, as far as could be seen, nor the normal chemical changes that result in the elimination of nitrogenous excreta, phosphoric acid, and the like. In a word, no evidence was forthcoming to show that alcohol either saved or exhausted the tissues; that is to say, the good or evil ascribed to alcohol in this direction was not observed by Dr. Parkes and Dr. Wollowicz in the healthy man. It may be, of course, different in disease. The effect on the nervous system was shown only by subjective symptoms,—headache, heaviness, loss of cheerfulness and alacrity, torpor and sleepiness; and narcotism was induced by an amount of alcohol less than 4 and nearer 2 ounces daily, and the experimenters conclude that the narcotism, the loss of appetite, and the increased frequency in the heart's beats, are related to the common cause, viz., implication of the nervous system. The general inference of the experimenters on this point is that something under 2 fluid ounces of alcohol could be taken daily without harm by the man under observation. The following are the final conclusions given by Dr. Parkes and his coadjutor. "It will be seen that the general result of our experiments is to confirm the opinion held by physicians as to what must be the indications of alcohol in health and disease. The effects on appetite and on circulation are the practical points to seize; and, if we are correct in our inferences, the commencement of narcotism marks the point when both appetite and circulation will be damaged. As to the metamorphosis of nitrogenous tissue, it seems improbable that alcohol in quantities that can be properly used in diet has any effect; it appears to us unlikely (in the face of the chemical results) that it can enable the body to perform more work on less food, though by quickening a failing heart it may enable work to

be done which otherwise could not be so. It may then act like the spur in the hide of the horse, eliciting force, though not supplying it." The experimenters, while recognizing further the great practical use of alcohol in raising a failing appetite, exciting a feeble heart, and accelerating a languid capillary circulation, are strongly impressed with the need of moderation and caution in its use. They do not deal with diseased conditions, but only a state of health, and do not refer at all to the action of wine or beer.—*Druggists' Circular and Chem. Gazette*, Nov. 1870, from *London Pharm. Jour.*

THE COMPOSITION OF CHLORODYNE.

Mr. Edward Smith reports in the *Pharmaceutical Journal*, an inquiry into the composition of this well-known secret remedy. Hitherto, of the formulæ which have been published, two—one by Dr. Ogden, the other by Mr. Squire—have attracted most attention. The difference between these lay essentially in the presence of Indian hemp and capsicum as indicated by Ogden, their absence in the formula given by Squire. But besides this, the proportion of morphia, as given by the two authorities, differed greatly. About the three important ingredients—chloroform, morphia, and hydrocyanic acid—there can be no doubt; no more can there be about oil of peppermint and treacle. The question is whether anything else exists in the compound. Mr. Smith thinks there is no Indian hemp, because the alcoholic extract is soluble in water; but then there is capsicum, as, after the chloroform and ether, which also give pungency to the mixture, have been distilled off, the substance left behind has a hot peppery taste. He seems to have taken much pains with the analysis. Here is the composition he assigns to chlorodyne:—

R.—Chloroformi, f. ziv ;
 Morphiæ mur., grs. xx;
 Æther. rectific., f. zij ;
 Ol. menthæ pip, M viij;
 Acidi hydrocyanici dil., f. ziv ;
 Tinct. capsici, f. zvj ;
 Mist. acaciæ, f. zij ;
 Theriacæ, ad f. zv .

This is not quite so dark as the original, as no caramel is used. Mr. Smith suggests for it the title *Liquor Chloromorphiæ Co.*, as not likely to be confounded with that of any other compound.—*Druggists' Circular and Chemical Gazette*, Nov. 1780.

ON THE FUSIBILITY OF PLATINUM IN THE BLOWPIPE FLAME.

BY W. SKEY.

The metal platinum has hitherto been supposed to be infusible, except at a temperature that is so high as to be incapable of being produced by the common blowpipe; at least I have carefully searched for any statements to the contrary, without success.

When I was lately engaged in studying the effects of the hot-blast blowpipe flame, the results of which investigation have already been

communicated to the Wellington Philosophical Society, I found it necessary to test, with accuracy, the degree of fusibility of platina; and discovered that if the loss of heat from the flame, by conduction, was guarded against, platinum can be fused with an ordinary blowpipe blast through a candle flame. The method adopted was to substitute, for the metallic nozzle generally employed, a tube of clay or glass, either of which is a feeble conductor of heat, as compared with metals.

By this means fine platinum points were fused in an unmistakable manner to beads. The blast was that ordinarily used in the laboratory by the use of the hydrostatic blowpipe, the flame being that of a stearine candle.

As it might be urged that, perhaps, the platina I treated might contain an admixture of more fusible metal, and that its melting point might thus be reduced, I prepared some of the platina for special trial, which was absolutely free from such fusible metals.

As the fusing-point of platinum has been ascertained to be 4593° F., we must, from the above experiment, conclude, that if proper precautions are taken to prevent loss of heat by conduction, this high temperature can be produced by the ordinary blowpipe operating upon flames of this description.—*Druggists' Circular and Chemical Gazette, from Chemical News.*

EXPERIMENTAL RESEARCHES ON GOLD AND ITS COMPOUNDS.

J. P. Prat, (in *Comptes Rendus*,) says, that in order to obtain the best possible solution of gold, the two constituents of the aqua regia, nitrohydrochloric acid, should be each diluted with their own bulk of water previous to being mixed; the metal having been dissolved, of course heat is to be applied. The liquid, previously quite cooled, is neutralized with bicarbonate of potassa; and, next, oxalic acid is added, which causes the reduction of the gold to the metallic state, but in the shape of a very finely-divided powder, which, however, agglutinates by applying heat, so as to become a spongy mass, which may readily be kneaded into shape by the fingers. The writer describes the combinations of gold with oxygen and with chlorine—to wit, an intermediate, or olive-colored oxide, Au_2O_2 , a binoxide, AuO_2 , a protochloride, sesquichloride, and perchloride. Among the salient points resulting from the writer's researches, the most remarkable is that gold may be directly oxidized and salified by some of the oxacids, and that, in many instances, gold behaves with reagents as other metals do.—*Druggists' Circular and Chem. Gazette, from Ch. News.*

FURTHER APPOINTMENTS.—According to the *British Medical Journal*, May 27th, 1871, Mr. John Tomes, F. R. S., and Mr. Samuel Cartwright, have been appointed Consulting Dental Surgeons to the Dental Hospital of London.

APPOINTMENT.—The *London Gazette* announces that the Queen has been pleased to appoint John Smith, Esq., M. D., F. R. C. S. E., to be Surgeon Dentist to Her Majesty in Scotland.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.



TRUSTEES.

HENRY C. CAREY, PRESIDENT,	S. DILLINGHAM, D. D. S.,
W. L. ATLEE, M. D.	G. R. MOREHOUSE, M. D.,
ELLERSLIE WALLACE, M. D.,	THOMAS WOOD,
BENJAMIN MALONE, M. D.,	HON. W. S. PEIRCE,
W. W. FOUCHE, D. D. S.,	GEORGE TRUMAN, M. D.,
J. D. WHITE, D. D. S.	CHARLES HAMILTON, Sec'y.

FACULTY.

T. L. BUCKINGHAM, D. D. S.,
PROFESSOR OF CHEMISTRY.

E. WILDMAN, M. D., D. D. S.,
PROFESSOR OF MECHANICAL DENTISTRY AND METALLURGY.

G. T. BARKER, D. D. S.,
PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS.

JAMES TRUMAN, D. D. S.,
PROFESSOR OF DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

JAMES TYSON, M. D.,
PROFESSOR OF PHYSIOLOGY AND MICROSCOPIC ANATOMY.

J. EWING MEARS, M. D.,
PROFESSOR OF ANATOMY AND SURGERY.

J. M. BARSTOW, D. D. S.,
DEMONSTRATOR OF MECHANICAL DENTISTRY.

E. R. PETTIT, D. D. S.,
DEMONSTRATOR OF OPERATIVE DENTISTRY

E. WILDMAN, DEAN,
1205 Arch Street.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Sixteenth Annual Session, 1871-'72.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, when ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability. During October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on the first Monday in November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below :

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation, and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND MICROSCOPIC ANATOMY.

The lectures from this chair will include human physiology, histology and physiological chemistry, with such portions of comparative physiology as are essential to a comprehensive understanding of the subject. The doctrines of life and organization will also be appropriately considered. The course will be amply illustrated by appropriate diagrams, chemico-physiological experiments and vivisections, as well as by microscopical demonstrations.

ANATOMY AND SURGERY.

The instruction in this department will embrace a systematic course of Lectures on Descriptive and Surgical Anatomy, fully illustrated by dissections on the *cadaver*, preparations, models, drawings, &c.

The minute anatomy of the various organs and tissues of the body will be shown by the class microscope, and particular attention will be given to the demonstration of the anatomy of the head and face.

Clinical instruction in the diagnosis and treatment of the surgical diseases of the mouth will be given once a week by the incumbent of the chair. Students will thus have the opportunity of studying oral diseases, and witnessing the operations adopted in their treatment.

CLINICAL INSTRUCTIONS.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the demonstrators.

IN THE OPERATIVE DEPARTMENT.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

IN THE MECHANICAL DEPARTMENT.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

PRACTICAL ANATOMY.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

HOSPITAL CLINICS.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEEES.

Matriculation, (paid but once,) - - - - -	\$5 00
For the Course, (Demonstrator's ticket included,) - - - - -	100 00
Diploma, - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Gray's, Leidy's, or Sharpey & Quain's Anatomy; Kirke's Physiology, (English edition); Dalton's or Flint's Physiology; Tyson's Cell Doctrine; United States Dispensatory; Pereira's or Stille's Therapeutics; Fownes Elements of Chemistry; Brandt & Taylor's Chemistry; Flint's Practice of Medicine; Tanner's Practice; Tomes' Dental Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the same subjects.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

For further information, address

E. WILDMAN, Dean,
No. 1205 Arch Street, Philadelphia.

BOARD can be obtained at from \$4.00 to \$8.00 per week.

ALL THE INSTRUMENTS AND TOOLS required can be procured for from \$15.00 to \$20.00.

Pennsylvania College of Dental Surgery.

SURGICAL CLINIC.

A Surgical Clinic for the treatment of Injuries and Diseases of the JAWS,
HEAD AND FACE,

Will be held each Wednesday morning, at 11 o'clock, during the year,
with the exception of the months of July and August.

PATIENTS COME AT 10½ O'CLK. (jly-ly) TREATMENT GRATUITOUS.

M. L. FREDERICK,

Engraver of

Seals, Card and Door-Plates,

153 South Fourth Street,

PHILADELPHIA.

THE DENTAL TIMES.

VOL. IX.

PHILADELPHIA, OCTOBER, 1871.

No. 2.

Original Communications.

THE MALLET.

BY JAMES TRUMAN, D. D. S.

It would seem to the superficial observer, that the simple instrument—the name of which heads this article—has been so long before the profession, that but little of interest and nothing of importance could be written regarding it; yet, probably, no instrument of which we make daily use in practice has had so little attention as this; hence, we find great diversity of opinion in regard to the relative value of different kinds of metal, the proper weight to be used, the force of the blow, &c., operators disagreeing in proportion to their supposed success in the use of one or the other kinds. When a subject is left to mere theorizing, as this has been, no definite results can be obtained.

The mallet has been used for a period relating to which there is no definite history. It was extensively employed in Koecker's time, as is evidenced by the following quotation from his work.* In writing of "methods of stopping teeth," he says: "But what is more surprising and repugnant, after the tooth is thus prepared for the reception of the stopping, some operators actually employ a *hammer and punch to drive the metal into the cavity of the tooth*. I have seen the most alarming consequences proceed from this barbarous practice, &c." Fitch† also writes of it, and condemns it in the following language: "I will here mention a very objectionable mode of preparing the cavity for the plug, and also a most injurious manner of introducing or compacting the metal. It is by using a common drill, turned with a bow and string, to prepare the cavity and fit it for the plug, and then to introduce the metal and further compact it by using a hammer and punch. The most pernicious consequences

* Principles of Dental Surgery, Leonard Koecker, London, 1826.

† A System of Dental Surgery, by Samuel Shelden Fitch, M. D., Phila., 1835.

follow this practice." This instrument was extensively used by some of the older dentists upwards of fifty years ago. Dr. Warren Leslie, of Waterloo, N. Y., filled with it at least twenty-five years ago, and did work through its agency not excelled by any at the present time, and was far superior to any the writer was acquainted with at that period. The claim, therefore, sought to be established, that it is of modern introduction, must fail. Great credit is due Dr. Atkinson, of New York, for his persistent efforts to prove the value of this instrument, and that in the face of prejudices that would have appalled any ordinary person.

The theory upon which the use of this instrument is based is, that a sudden concussion will condense or compact more thoroughly than any regular force, no matter how long continued. This is illustrated in the simplest manner by the driving of a nail. Pounds weight may be applied to a nail by ordinary pressure, and it will fail to penetrate the soft wood; but the application of a small hammer will, by the sudden concussion, implant it without difficulty. Acting upon this well known law of force, it was contended that no amount of strength exerted on the instrument could ever equal the impacting power of an ordinary wooden mallet. Results sustained this theory in operations in the mouth. When the force is equal—the resisting force and the force applied—the union will be comparatively perfect, and if perfect it follows that condensation cannot proceed farther. The idea that prevails, that an increase of force by a multiplication of weight will impact to a greater extent, is only in part true. Force and weight impact, but an increase beyond certain limits will fail in giving greater density. If, then, condensation results when resistance is equal to force, and cannot proceed beyond certain limits, it is simply necessary to determine the requisite amount of force to accomplish this. When resistance is not equal, then an increase in the velocity of a given weight is necessary, to overcome the loss of force in the mobility of the object.

The force of a body's motion, or its momentum, is increased by the velocity; if that is doubled the force is doubled, and so on in regular proportion. If, then, one body be at rest and another in motion, the impact produces a loss of force in the body moving, which loss is imparted to the one at rest, so that the force of the two combined equals the original force in the moving object. It follows, therefore, that the latter has lost a proportion of its force. If, then, we have a non-resisting body as a base, we find that every blow struck loses a certain proportion of its effect. It is a well known law, that a certain appreciable amount of time is required for a blow to distribute itself throughout the particles of matter of the object struck. When the blow is too rapid to permit this, the result follows that resistance is equal to striking a perfectly solid body.

If, then, gold foil be in process of condensation, and a hard base is used to support the matrix, the "hand pressure" method will produce a density nearly, if not quite equal, to that where a heavy mallet is used; but if, in place of a solid base a soft substance is used to support the matrix, great loss of condensing power is the result. The filling so placed will be of less weight than one inserted by any form of mallet. While weight, to a certain degree, is important, velocity is infinitely of greater value. Velocity overcomes mobility, weight increases it. In proportion to the extent of the former will the motion of the non-resisting base be overcome.

What, then, necessarily follows from these deductions? That velocity on a partially non-resisting body, as a tooth in the mouth, is of vastly more importance than weight. It is strange that this well known law has not been more generally applied to the operation of malleting. The great effort has been to secure weight; and weight, as we already know, decreases velocity. Reasoning, then, from this basis, it would seem that the most effective mallet that can be made, must be one that combines lightness with solidity.

If the loss of force is to be overcome in the non-resisting medium, care must be also taken that there shall be equally no loss in the force applied. This, therefore, must be a dense metal. Lightness gives velocity, and velocity, as before stated, overcomes mobility. Now, where do we find these qualities to the greatest extent? *In the light steel mallet.* They are represented in the least quantity in the lead mallet. The advantages claimed for the latter are, that it gives a dead, solid blow, and is, consequently, less uncomfortable to the patient. That less noise is made in its use cannot be denied; but if experience is of any value, the blow is equally as painful, and, by many, thought to be more so, than by any mallet in use. My own experience leads me to believe that it has been greatly overrated in this respect, and for condensing purposes is absolutely inferior to other forms.

Believing that some good would result from an examination, by actual experiment, of the relative merits of the metals in prominent use in mallets, I commenced a series of investigations, the details of which are subjoined.

An instrument was devised upon the principle of the pile driver, by Mr. C. B. Davis, student in dentistry. This was so arranged that the blow could be given with great rapidity, and could be regulated for any distance. After much experimenting the distance for the weight to travel was fixed at one inch. The metal mallets used, lead and steel, were regulated to a weight of eight ounces, and the wood at six ounces. It was found that a greater fall than one inch failed to secure an increased condensing power, and if continued to a fall of six inches was a totally destructive

force. The velocity attained in the distance of one inch travel and eight ounces mass, gives 1.54 pounds as the force applied at the point of impact. Being desirous of having this beyond question, I procured the services of a very competent gentleman in the Treasury Department at Washington, Mr. A. G. Thompson, to whom I am under great obligations. As there are doubtless many who, not having means of reference, would be interested to know the process of working this out, I give the formula, though at some risk of being thought elementary.

“All bodies, affected only by gravity, fall 16.1 feet the first second; at the end of the second second this is increased to four times 16.1 feet; at the end of the third nine times 16.1, and so on, increasing with the square of the seconds.

N.—Number of seconds the body is in falling.

S.—Space fallen through in feet.

V.—Velocity in feet per second acquired in N. seconds, or S. space.

$$V. = N. \times 32.2.$$

$$\left\{ \begin{array}{l} V. = \text{sq. root } S. \times 64.4. \text{ The sq. root of } 64.4 \text{ is } 8.025. \\ \text{Therefore, } V. = 8.025 \times \text{sq. root } S. = \text{and } S. \text{ varies.} \end{array} \right.$$

$$S. = N^2 \times 16.1.$$

We want to know what impact or force a body will strike an object falling through a space of one inch.

I. is impact = mass, which is 8 pounds, multiplied by velocity.

$$V. = \text{sq. root } S. \times 64.4 \text{ and } S. = 1/12 \text{ of a foot, or } .0833 \text{ of a foot.}$$

$$V. = \text{sq. root } .0833 \times 64.4.$$

$$V. = .288 \times 8.025 = 2.31.$$

Now, 2.31 is the rate or velocity at which eight pounds is traveling at the end of traveling one inch. It has increased to this speed—

Now, I. = mass and velocity.

$$\text{Therefore, } I. = 8 \text{ pounds} \times 2.31, = 18.48 \text{ pounds.}$$

$18.48 \div 12 = 1.54$ pounds, the amount of impacting force of 8 ounces.”

The loss in friction in the above calculation was not taken into account, but as this was trifling the result may be relied on as correct.

As a non-resisting medium for base I used a double layer of very soft spunk, and also a very soft cushion prepared for the purpose. To render the latter more resisting, it was compressed. To increase the value of the comparison, Bonwill's Electrical and Salmon's Automatic Mallets were also employed.

I am greatly indebted to Mr. Frank Thompson, of the U. S. Mint, for

the careful weighing in milligrammes. The result can, therefore, be relied upon as strictly accurate.

Great care was taken in the preparation of these fillings, and as they were made in a hardened steel matrix, the variation, if any, must be infinitesimal. The tin fillings were prepared in a larger matrix. But one size was used for each kind of metal. With these necessary explanations, I subjoin the result:

	Materials Used.	Character of Force Applied.	Base.	Weight in Milligrammes
No. 1.	Gold Scraps.	Electrical Mallet.	Soft Cushion.	287 $\frac{1}{2}$
2.	Gold.	6-oz. Wood do	Spunk.	180 $\frac{1}{4}$
3.	do	Automatic do	Dense Cushion.	217
4.	do	$\frac{1}{2}$ -oz. Steel Hammer.	Wood.	236 $\frac{1}{2}$
5.	do	2-oz. Lead Mallet.	do	229
6.	do	8-oz. Steel do	Spunk.	202 $\frac{1}{2}$
7.	do	8-oz. Lead do	Steel.	237 $\frac{1}{2}$
8.	do	Electrical do	Cushion.	290 $\frac{1}{4}$
9.	do	8-oz. Steel do	Soft Cushion.	189 $\frac{1}{2}$
10.	do	Electrical do	Hard Base.	287
11.	do	do do	do	272
12.	do	Hand Pressure.	Wood.	231 $\frac{1}{2}$
13.	Tin.	8-oz. Steel Mallet.	Steel.	307
14.	do	8-oz. Lead do	do	287 $\frac{1}{2}$
15.	do	8-oz. Steel do	Spunk.	285
16.	do	Hand Pressure.	do	264 $\frac{1}{2}$

An analysis of this destroyed some of my own ideas in regard to this matter, as it will, doubtless, others. It might have been profitably extended, but it is believed that the results obtained are sufficient to arrive at definite conclusions. It will be noticed that the difference between a filling placed in with hand pressure, on a wood base, and that by a half ounce steel mallet on the same base, is but five (5) milligrammes, an amount so slight as to be scarcely appreciable, justifying the assertion that hand pressure will pack as thoroughly, on a hard base, as the mallet. On the other hand, if we compare No. 13 tin, steel mallet used, on steel base, with No. 15 same mallet and spunk base, we find a difference in favor of the former of 22 milligrammes, or with No. 16 tin, hand pressure and spunk base, we find the difference to be 42 $\frac{1}{2}$ milligrammes. If we take No. 6, where an eight ounce steel mallet was used on a spunk base, and compare it with No. 9, where the same mallet was used on a soft cushion, we find the difference in favor of the denser material to be 13 milligrammes. If, again, we compare the result obtained by the steel hammer of half ounce, wood base, with No. 7 eight ounce lead mallet, steel base, we find but one milligramme in favor of the heavy mallet. When the difference in the solidity of the base used is taken into consideration, the comparison is largely in

favor of the light mallet. The difference is more apparent if the result of Bonwill's steel mallet, No. 10, wood base, be compared with the eight ounce lead, steel base. The difference here in favor of Bonwill's is $49\frac{1}{2}$ milligrammes, and if the comparison be made with Bonwill on soft cushion, the difference is wonderfully in favor of the latter. If, finally, we compare Bonwill's No. 10, hard base, with No. 1 Bonwill's soft cushion, we find a half milligramme in favor of the latter. It will be observed that instead of a falling off by the use of the non-resisting base, there is an absolute increase, or at least no diminution in weight. This result does not follow with any of the other experiments, as, for instance, No. 4 steel hammer on wood base, compared with No. 9 eight ounce steel mallet on soft cushion, shows a difference of 47 milligrammes in favor of the hard base, and if compared with No. 2 six ounce wood mallet on spunk base, the difference is $56\frac{1}{4}$ milligrammes. This exhibit is a remarkable illustration of the theory advanced, that velocity is more important than weight in overcoming mobility. In fact the velocity given by the electrical current, as thus applied, entirely overcomes mobility, a result not accomplished by any of the other mallets.

The conclusions necessarily deduced from this examination are :

1st. That hand pressure in the mouth can never condense as thoroughly as the mallet.

2d. That weight cannot entirely overcome mobility.

3d. That density and velocity are requisite in a mallet.

4th. That for hand malleting, the light steel mallet is to be preferred.

Now, if my conclusions are correct, and I fail to discover an error in them, it naturally follows, that if velocity and density are combined, the full measure of success will be obtained. Where may we look for this? It has already been indicated in the remarkable results given by the electrical mallet.

By the comparisons already given, but one conclusion, I think, can be arrived at, that this instrument combines all the desirable qualities mentioned. The density is found in the steel mallet used, and the velocity, ranging from 500 to 1,000 blows per minute, is more than requisite to accomplish desired results. I make this statement all the more freely, as I have no interest in this instrument, not even to the extent of being the possessor of one. But in the course of these investigations it became necessary to give it a thorough examination, and I was so much impressed with its value, in every respect, that I should stand derelict to a known duty not to give these results, especially as it seems to have failed to elicit the commendation it appears to deserve. From my own observations I regard it as unequaled in ingenuity, and a very great advance in the progress toward professional success.

This instrument, combined with Morrison's or Green's pneumatic drill, will, I think, work a revolution in practice, and result in saving the health and strength of the operator and valuable time to both patient and dentist. My observations in practice have been limited to a few fillings. I shall, therefore, not pretend to dogmatize on its qualities, but the results obtained have convinced me it will save, to one experienced in its use, three-fourths of the time usually consumed. To obtain this, some time is necessary to acquire manipulative skill. The regularity of the blow enables the operator to pack against frail walls without danger, and it will condense the periphery of fillings or those portions contiguous to walls, as solid as other parts. It will be acknowledged, I think, that gold at these parts is rarely or never as solid as more central portions. In the examination of many cases I have found this invariably the case. In a large filling inserted with this instrument out of the mouth, by my friend Dr. Huey, the gold was found as solid at the periphery as at any other part. I failed to detect, by microscopic examination, any separation at any point between the gold and tooth substance. So thoroughly solid is the gold made throughout, that the labor of finishing becomes excessively irksome, unless the before mentioned appliances of drills be made use of. In regard to its effect on patients, there will, of necessity, be a variety of opinion. In conversation and by letter with twenty patients operated upon, I found a nearly unanimous opinion of preference for it over other forms of packing. On the other hand, some complain seriously of it. This is the result in all mallet packing. Theoretically, this instrument should not be as unpleasant. When the blows are impressed with the great rapidity these are, the mind fails to detect individual strokes, and although the severity may be fully equal, the dread of the blow is in great measure lost. Then, again, there is no irregularity in the blows, a fault always present in hand malleting.

When the mallet was originally introduced, it was thought that patients would not submit to its severity. While there are many operators who have not adopted it in practice, it is apparent that the large majority have, and the superiority of their work attest the correctness of their judgment. While care for the patient should always be a paramount object with us, this may be carried beyond what is really for their greatest good. When the end justifies the means, the responsibility should always be assumed. In this sense, may we regard the mallet a blessing, and the electrical mallet the superior to all others, inasmuch as it saves labor, strength, patience, time, and in the end brings our work nearer to perfection.

INJURIOUS EFFECTS OF AMALGAM.—A CASE IN PRACTICE.

BY ELIHU R. PETTIT, D. D. S.

On October 1st, 1868, I inserted a large amalgam filling in the second inferior left molar, mesial and grinding surfaces. On the 8th of the same month the patient, Mrs. P., ate two or three fried oysters, and almost immediately afterward became very sick at the stomach, without vomiting, however, but with a rash breaking out upon her face and neck, with itching, and œdema of the face and eyelids. By the next day she was quite well, except that the rash had not entirely disappeared. About a month afterward, again partaking of oysters, the same symptoms returned, with coldness of the extremities, to such a degree as to become alarming. Attributing these symptoms to the oysters, she abstained from them entirely.

On the 17th of May, 1870, I applied the arsenical paste to the pulp of the right inferior second molar tooth of the same patient, in the usual manner. About an hour later, after the lady had returned to her home, the symptoms above mentioned reappeared. She returned the next day, when I cleaned out the cavity and removed the pulp. The rash had then partially disappeared. On the succeeding day, the 19th, when she returned to have the tooth filled, she complained of all her teeth being sore, and some of them slightly loose, but especially those on the right side of the mouth, and in the immediate neighborhood of the tooth to the pulp of which the paste had been applied. The rash had also returned in a greater degree than before. I am quite confident that the patient could not have swallowed any of the paste, although the cavity was on the proximal surface, and the tooth was properly protected by napkins, so that these effects must have been produced entirely by the absorption of the arsenious acid through the pulp. The patient left the city the same day, the 19th, and while absent the same symptoms were produced by fish and radishes.

The similarity of these symptoms with those produced long before by the oysters point to the same cause for both, as there had previously been no idiosyncrasy in regard to any article of food. Upon careful examination no cause could be discovered why such effects should be produced, when, to test the matter, I removed the amalgam filling, supposing that the mercury might have produced and kept up such a state of irritability in the system that articles of food, which might have even a slight tendency to disagree with her, even if not sufficient to be noticed, might produce such alarming results. Since that time, (May, 1870,) there has been no return of the symptoms, although she has partaken freely of oysters and such other food as before disagreed with her, thus proving these effects to have been caused by the mercury.

Although such cases are rare, they are sufficiently frequent to cause us to be on our guard against them, while they should lead us to discard from our practice, wherever it is possible to do so, a substance so insidiously deleterious in its effects. They should lead us also to remove all amalgam from the teeth of any of our patients, who may have been suffering from ill health from any obscure or uncertain cause, which will not yield to the ordinary remedies; while those who are in the habit of inserting such fillings generally, making gold the exception, incur a responsibility which few, who are aware of such cases, would care to assume.

REPORT OF A CASE OF EPULIS, OR FIBROUS TUMOR OF THE LOWER JAW.

BY J. S. SMITH, D. D. S.

Isaac L—, a lad aged fourteen years, of a good constitution, sanguinolympathic temperament, with well-developed maxilla, teeth free from caries, and regular in the dental arch, applied for the removal of a tumor occupying the inferior maxilla at its symphysis and the immediately adjacent parts. It arose posteriorly from between the frontal incisors, and involved the alveolar process. The right frontal incisor was pushed outward and to one side, overlapping the right lateral.

From what could be ascertained from the boy and his attendant, the tumor first made its appearance about the seventh year, just after the incisors had made their appearance. From that time it was observed to be gradually increasing in size for nearly six years, without causing pain, until it had passed beyond the cutting edges of the teeth. At this time it became apparent that something must be done to relieve the sufferer.

A physician of the neighborhood was summoned, when he made the first attempt to remove it, which failed. At the end of six months it had made its appearance again. Surgical aid was sought for the second time, and a second attempt to remove it was made by another physician of the vicinity. Six months later and the case was presented to me for an opinion. After a thorough examination it was concluded that the growth was fibrous, springing from the periosteum. At that time the tumor was almost uniformly white in color, slightly lobed, dense and elastic; its greatest diameter at the free extremity, gradually tapering to its point of attachment. The parts about the base were in a highly inflammatory state, causing much pain on pressure. The mass had again passed beyond the cutting edges of the incisors, the superior incisor having caused the tumor to spread on either side of the articulation, and at the point where the incisor had penetrated, slight ulceration had taken place.

Treatment.—Having been satisfied that the tumor had its origin at the periosteum, and springing from immediately between the teeth, and from

the fact that the central incisor had been pushed to one side, it was decided to remove the tooth, and cut well through the process upon the bone, in order to scrape the periosteum. The patient was placed under an anæsthetic, (S. ether,) Dr. Taylor kindly assisting, and the operation was performed with ease. The hemorrhage was slight, subsiding in half an hour after the operation.

The operation was performed on Saturday, June 17th. At this writing, July 3d, the sixteenth day after the operation, the parts seem to be in a very favorable state, the inflammation having subsided, except where repair is going on in the cicatrix.

The above case is one of some interest, and is made more so by having been operated upon at two distinct times. The case will be watched closely, and if the growth should make its appearance a fourth time, a further report of it will be made.

COLUMBIA, PA., July 3d, 1871.

EXTRACTION OF TEETH.

AN ADDRESS BEFORE THE SALUDA (S. C.) DENTAL SOCIETY.

BY R. S. WHALEY, D. D. S.

The subject which you have imposed upon me is one of acknowledged importance in dentistry. It is one which should exact from every member of our profession patient and scientific research. To relieve, as far as possible, the ills of humanity is required at the hands of every practitioner in any of the departments of medical science—medical, surgical or dental; and although the extraction of teeth is not relief of evil unalloyed by disadvantage, since it is often attended by the loss of otherwise useful members, the operation is none the less a means of signal relief to suffering, and as such should be well understood. Moreover the extraction of teeth is a delicate and creditable operation, if done properly.

That portion of the human body with which the dentist has to deal is so intimately connected with the nervous system, that when it is keenly affected, the suffering caused is perhaps equaled by no other. No language can express it better than that of Robert Burns:

“Shoots the tortured gums along,
And thro’ the legs gies mony a twang
Wi’ gnawing vengeance,
Tearing the nerves with bitter pang,
Like racking engines.”

It would be useless for me to go remotely into ages obscured by the dust of years, to describe the wild and chimerical notions of ancient practitioners. I am fully aware that those whom I address are too familiar with the early history of dentistry to justify my detaining them on these matters, when there is so much of the practical present before us and so much of progress in the future.

Whatever the skill of the ancients might have been, they were singularly opposed to the extraction of teeth. They proposed numerous remedies, of the virtues of which we know nothing. We simply know that they ever advised and recommended great hesitation and precaution before proceeding to the extraction of teeth. It is essentially necessary, however, that some portion of my remarks should be directed to the instruments employed for the purpose, not that I intend to dwell at length upon them or make anything more than a few suggestions.

Since the vulscella was described by Celsus, each year has added improvements. Serried ranks of instruments present their glittering blades by Cartwright, Snell, Flagg, Church, Crane, Hulliben and Maynard, each one a decided improvement, until we find, by Fay, the "*adjusted forceps*," which is regarded as a *sine qua non* in the fabrication of dental instruments. As a result of this it may be truly said, that we live in an age when every practitioner of dentistry, if he will, can possess all these valuable improvements.

But good instruments are not alone necessary. For the extraction of teeth, it is also important that every practitioner should have an intimate acquaintance with the normal and pathological condition of the teeth and their surroundings. Here as elsewhere intelligence is necessary to secure success in one's business or profession. A no less important condition to success in the extraction of teeth is a precise knowledge of the individual peculiarities with which you have to deal.

While the operator of dentistry should be skillful, he should always be courteous, affable; all unnecessary display of instruments should be avoided, and the surroundings should be of such a character as to allay the fearful apprehensions of the weak and timid. I do not pretend to assume to select instruments for other men, I leave it to every one to suit himself; but there are instruments which have obtained great popularity, and which, therefore, with common sense and the majority for a guide, must be generally adopted.

For the removal of the upper incisors, the instrument I use is one with straight beaks. Some prefer the lower handle bent, but I like a straight handle, because it does not interfere with the chin while one is operating; but I must say, however, that I prefer the beaks being thin, as they cut the gums without requiring the use of the lancet. Allow me here to say, also, that I object to the use of the lancet except for the purpose of opening abscesses; otherwise I think it should be voted out of practice, since the adhesion of the gum is so very slight as to be easily separated by the forceps, skillfully handled, and with little pain to the patient, while there is, moreover, no preliminary alarm and trepidation excited in the nervous sufferer.

For the molar teeth I prefer the "hawk's-bill" forceps, for the reason that they are made with such points as to take the most thorough hold on the teeth or roots on which they are to be used, and with such curvature of shaft as to enable them to pass most readily to the desired position. Some are so formed at the points as to embrace the root at the border of the alveolus, using the latter as a fulcrum; others to pass between the alveoli, and thus approach the root. I prefer the "hawk's-bill," from the fact that it raises the tooth without so much force, and that it is not nearly so apt to crush the crown of the tooth as the "square bill." In all ordinary cases these forceps, skillfully used, seldom fail to give satisfaction, both to the operator and patient.

With a proper knowledge of the physiology and pathology of the teeth, having secured a perfect acquaintance with the peculiarities of the case under consideration, and having selected the proper instrument, the operator should finally have sufficient confidence in his own powers and ability. With this attainment added, the rest is comparatively easy. A timid operator can never be successful.

I have not attempted an elaborate essay, as I have not desired to weary your patience, but I have endeavored to show that success depends largely on intelligence and confidence. When we undertake difficult operations we must be prepared to grapple and overcome them.

Every science has its difficulties as well as every part of that science, and dentistry and extraction of teeth are no exception to the rule. The road to knowledge is as difficult and narrow as the path to virtue. Do what you ought, happen what may, is a maxim applicable in every case.

There is withal much to encourage us, and there is little doubt but that if seeking knowledge, we labor with the best means at hand, to become useful experts in our profession, a reasonable success will reward us, despite the obstacles which must be encountered.

Original Lectures.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

SURGICAL CLINIC OF PROFESSOR MEARS.

FRACTURE OF THE RIGHT SUPERIOR MAXILLA, FOLLOWED BY PARALYSIS OF THE MUSCLES SUPPLIED BY THE SUPERIOR MAXILLARY NERVE.

Gentlemen :—The patient, J. S——, presents himself again to-day, in order that we may report to you the result of our efforts to make an artificial denture, by means of which we hoped to relieve, in a measure, the deformity produced by the gunshot wound of the face which we studied at our last lecture, (DENTAL TIMES for July, 1871,) and to prevent, if pos-

sible, the further lateral displacement of the inferior maxilla, which is gradually effecting the destruction of the teeth on the left side. The deformity we cannot expect to remove entirely, as it is dependent largely on the paralysis of the facial muscles, the result of truncal section of the facial nerve. The artificial denture, if applied, would remove only so much of the deformity as is due to the loss of portions of the superior maxilla. Dr. Barstow, the Demonstrator of Mechanical Dentistry, has taken the impressions of his mouth, here shown, and reports, after having made a careful examination, that it is impossible to adapt an artificial denture which could be held securely in position and fulfill the indications presented. This is owing to the entire loss of teeth on the right side, to which the denture could be fastened, and also to the irregular character of the surface presented in the upper jaw, which prevents the employment of suction power. We are indebted to the kindness of Dr. S. Weir Mitchell, of the Hospital for Diseases of the Nervous System, for the opportunity of studying this interesting case.

Before dismissing the patient, I desire to call your attention again to the condition of motor paralysis of the facial muscles, which exists, and to recall the remarks made at the last lecture, in regard to this condition. I do this as it is my intention to present to you to-day a case of fracture of the right superior maxilla, which is accompanied by paralysis of a nerve of sensation, the superior maxillary or the second division of the fifth pair of nerves. This case shows, in a marked manner, the effect of paralysis of this nerve, and considered in connection with the case which we have just examined, affords an opportunity rarely enjoyed, of studying, combined as it were, the two separate conditions. In the one case, as you have seen, we have motor paralysis of all the facial muscles, or more properly, of all the muscles supplied by the facial nerve. In the other, there exists paralysis of sensation in all the structures to which this division of the fifth pair of nerves is distributed. As the teeth of the upper jaw are supplied by branches of this nerve, the conditions presented in this case demand your careful consideration, and the study of them will materially assist you in comprehending the anatomical relations of the parts involved.

The patient gives the following history of his case :

He is forty years of age, and resides on his farm, a short distance from the city. Two weeks since, while engaged in playing a game of base-ball, he came in violent collision with a fellow player, the two running in opposite directions. He thinks that he was struck by the head of the player with whom he collided, the external part of the prominent ridge over the eye (the external angular process of the frontal bone) being the part which came in contact with his face. Their heads came into collision with such force as to render his companion insen-

sible. The blow was received upon the right cheek just below the eye. At the time of its receipt the eye-ball felt as if it would start from the orbit, and he experienced a sensation in it which he finds difficult to describe. A numbness of the side of the face, confined principally to the side of the nose and upper lip was immediately felt, and free hemorrhage took place from the right nostril. Shortly after the receipt of the injury, the eyelids became blackened and the eye very much congested. Closure of the jaws persisted until the fourth day, when the condition was overcome in an attempt which he made to bite a pear. In attempting to grasp the fruit with his teeth, he felt something snap just below his cheek bone, as he describes it, and he found that he could open his mouth quite wide. In a few days the difficulty entirely disappeared. He has felt at times a burning sensation in the parts, and also sharp, shooting pains. These conditions never continued for any great length of time, but would appear intermittently. Immediately after the receipt of the injury a numbness of all the teeth of the right superior maxilla, as well as of the subjacent mucous surfaces of the gums and cheek, was distinguished. In the teeth this condition was more distinctly marked in the incisors, canines and first bicuspid; in the canine tooth it was especially distinct, while in the molars and second bicuspid it was present in a much less degree. In masticating he has no sensation of articles of food being beneath the teeth. When struck he felt no pain in the antero-lateral part of the cheek; the impression conveyed was that this portion of the face had been removed, and he involuntarily placed his hand over the side of the face in the region of the zygoma where he felt pain. The physician summoned at the time of the accident directed the application of a sedative lotion; no other treatment has been adopted.

At this period after the accident there is very little evidence of any injury to the parts which can be detected on inspection, with the exception of a little puffiness a short distance below the right eye, and of a depression just below the lower border of the orbit; there is no perceptible difference between the two sides of the face. The congestion and discoloration of the conjunctiva and eyelids have disappeared. The patient complains of a sensation of fullness on turning the eyeball up; in other respects the condition of the eye is normal. On passing the finger along the inferior border of the orbit, you will observe that it sinks into a depression about the middle. This depression is not very deep nor very wide; it may be estimated to measure one-eighth of an inch in depth, and about one-quarter of an inch in width. After passing this point the finger can trace distinctly the remaining portion of the inferior border, and also the outer. On introducing the index finger of the right hand into the mouth, and sweeping it over the external and internal surface of the alveolar process, as well as over the palate process, no evidence of fracture of either can be detected. The teeth are *in situ* and firm. Pressure and counter-pressure made with the index finger of the right hand in contact with the palate process, and that of the left hand pressing on the body

of the bone externally, elicits no crepitus, nor does it give evidence of displacement of the bone from its position.

As the result of this examination we are able to state, that the injury sustained by the bone is confined principally, if not entirely, to that portion which assists in forming the inferior border of the orbit. On examining this skull you will observe that the depression felt in the inferior border corresponds to the point just over the infra-orbital foramen, at which point also terminates the line indicating the articulation of the malar and superior maxillary bones. The force therefore applied, has crushed and driven downward those portions of the superior maxillary and malar bone which, at this point, form the roof of the infra-orbital canal. It is possible that the line of fracture extends into the orbital surface, which forms the roof of the antrum of Highmore, and is quite thin. We have some evidence, as will be shown when we consider the nerve lesion, that the portion of orbital plate covering the infra-orbital canal has suffered most.

As this canal contains the superior maxillary nerve, we will be led naturally to examine what effect has been exerted upon it by the fracture of the superior maxilla at this point. When the finger is placed over the infra-orbital foramen, where the nerve emerges, the contact is recognized by the patient; the same is true of any part of the cheek, and in the gums. If, however, the surface is pricked with a pin, the patient does not feel it, and this condition exists on the side of the nose to exactly the median line, in the upper lip to the median line, and in the cheek outward toward the ear, to a well defined limit. The same condition is present on the inner surface of the lip and cheek, in the gums, and also in the lining membrane of the inferior meatus of the right nasal fossa. Moreover, if the teeth are percussed, no sense of pain is elicited.

We have here, gentlemen, two important conditions to consider, the first relating to the fracture of the bone, and the second, consequent upon the first, relating to the paralysis of the nerve. Fracture of the superior maxilla is comparatively infrequent, and when it occurs, is the result of severely applied force. The separation may take place in the different parts of the bone, in the processes more frequently than in the body, and of the processes, the one most liable to fracture is the alveolar. Examination of the bone will explain the cause of this, as you will observe that this part projects from the body of the bone, and is so placed as to readily receive the application of external force. The nasal process projects further from the body, but it is protected by its articulation with the other bones of the face. The alveolar process is frequently broken in the extraction of teeth, and sometimes serious consequences ensue. This accident, happily, is not of very frequent occurrence at the present day, owing to the em-

ployment of better instruments for extraction, and to increased knowledge in reference to their use. The "Key," which in former times was the only instrument employed in extraction, was the frequent cause of fracture, even in the most skillful hands. With the forceps, the manufacture of which is carried to so great a degree of perfection, it is *occasionally* found impossible, in the extraction of the molar teeth, to avoid fracture of the alveolar process, on account of the wide separation and oblique direction of the fangs. If this fracture of the process is confined to the alveolus from which the tooth is taken, it may not be regarded as particularly harmful, since absorption of the cavity must follow, and the accident will contribute to this end. When, however, it is extended to the adjacent alveoli or to the body of the bone involving the cavity of the antrum, it may produce very serious results.

Collisions between two persons, as was the case in this instance, are more frequently attended by fracture of alveolar process and dislocation of the teeth. Mr. Heath, in his work on the diseases and injuries of the jaws, refers to a case, recorded by Mr. Salter, in which "a young gentleman sustained fracture of the upper jaw from violent contact with a fellow-cricketer's forehead. A fracture of the bone was produced immediately behind the right canine tooth, which extended backward so as to include the alveoli of the bicusps and first molar teeth, which were driven inward toward the median line, to the extent of about one-third of an inch."

We now come to the consideration of the injury inflicted upon the nerve. The statement of the patient, that he distinctly feels the contact of the finger when placed upon the surface of the cheek, and yet permits, without complaint, the pricking of the surface with a pin, may appear to you inconsistent and inexplicable. When you recollect that there exist in the skin normally two kinds of sensibility, it may assist you in comprehending this condition. These kinds of sensibility are that of tactile sensation and the sense of pain. In health, not only the integument, but the mucous membrane of the mouth and other outlets of the body are endowed with both. It is possible, as the result of injury to the nervous filaments supplying the different structures, that the power of receiving painful impressions may be destroyed, while the sense of tact may remain unaffected. The converse of this is not true, however, for whenever the sensibility as regards tact, is lost, it is found that the sense of pain is also destroyed. In this case we find that the sense of pain is destroyed while the sense of tact is unimpaired. Paralysis of the sense of pain has been designated *analgesia*, while that of tact has been designated *anæsthesia*.

When discussing the injury to the bone, it was stated that the roof of the infra-orbital canal had been crushed in, and, as a result, pressure had

been made upon the superior maxillary nerve as it passes through this canal, before its appearance on the face at the infra-orbital foramen. This pressure has been sufficient to obstruct the passage of sensitive impressions, and consequently paralysis of sensation is produced in those parts to which the branches of this nerve are distributed, not only in the structures supplied by the terminal branches of the nerve, and by branches given off in the infra-orbital canal, but also in those receiving filaments from the nerve prior to its entrance into the canal, as certain portions of the orbit and the molar teeth. The branches supplied to these structures are given off from the trunk of the nerve as it traverses the sphenomaxillary fossa, and are, therefore, free from direct pressure, but we may regard its influence as reflected back, thus impairing the sensibility of the nerve at the point from which the branches take origin. As you know, the infra-orbital artery accompanies the nerve through the canal, and it may be that the obstruction to the current of blood so distends the vessel as to cause pressure on the nerve before it enters the canal. The fact that the impairment of sensibility in the molar teeth is less than in the incisors, canine and first bicuspid, would indicate that the pressure on the nerve at the point of origin of the posterior dental nerve, which supplies the molars, is less than that exerted on the nerve at the point of origin of the anterior dental branch, sending filaments to the anterior teeth. We may state positively, that the injury to the superior maxillary branch has not implicated the Gasserian ganglion, as we find the first and third divisions of the nerve unaffected.

Reviewing the two cases of paralysis, we find in one, section of a motor nerve, thereby preventing the transmission of volitions, and in the other, pressure on a sensory nerve interrupting the passage of sensitive impression, producing in the first motor, and in the second, sensory paralysis.

We have yet to explain the closure of the jaws, and the cause of the snapping sound heard by the patient, which followed his effort to bite the pear, and after the occurrence of which he was able to open his mouth. The closure of the jaws was undoubtedly due to injury inflicted upon the masseter muscle at the origin of its anterior fibres, which arise from the malar process of the superior maxilla. As a result of the contusion sustained by these fibres, an inflammatory action supervened and small bands of adhesions were formed. The effort to open the mouth sufficiently wide to grasp the pear ruptured these bands and relieved the closure.

Treatment.—The treatment to be adopted for the relief of the paralysis in this case is that which will effect the elevation or the removal of the portions of bone making pressure upon the nerve. As long as the pressure remains, the nervous impressions are interrupted and paralysis persists.

The operation to be performed is not of a very formidable character ; it consists in cutting down upon the part and elevating the depressed portions of bone, or, if necessary, removing them entirely. It may happen that the paralysis will be gradually relieved without operation, owing to the fact that the nerve will accommodate itself to the new position into which it has been forced. The patient thinks, even now, that the numbness felt in the molar teeth is diminishing. This we would expect to occur sooner than that felt in the anterior teeth. Sometimes distressing neuralgic pains follow accidents of this character. If this condition develops itself the immediate removal of the depressed bone would become imperative.

Leading Articles.

TO STUDENTS.

Another collegiate year is about to be inaugurated, and both students and professors are swayed by complex emotions in its contemplation. The former, in all instances anxious to avail themselves of the best opportunities which the colleges can afford them, are, in many cases uncertain where they will matriculate or begin their dental studies. It would be better, perhaps, if a larger proportion of students would come to the cities, having already made their selection in this respect, for in the doubt and uncertainty for which they seek solution, much valuable time is lost, while temptation is held out to partisans to exaggerate the advantages of their own colleges, and to detract from those of equally respectable institutions. This much, however, is certain, that in a large city like Philadelphia, where clinical material requires only to be fostered to be obtained in abundance, and where opportunities for advancement stimulate the utmost efforts of teachers, an industrious gentleman can obtain a thorough dental education in any established school. When competition is as close as it must be where two schools exist and desire to survive, there is no danger that the laggard will be allowed long to occupy a position which he is not worthy to fill, or by the occupation of which his school is permitted to be materially inferior to another.

We can, therefore, conscientiously say to all students of dentistry who come to Philadelphia, that if the proper effort is not wanting on their part they will be sure to obtain the practical and theoretic

tical knowledge which they seek. But not only can we assure them of this, but we also urge upon their careful consideration before they determine to go elsewhere, the advantages which the two well established schools of Philadelphia offer; for we do not think it can be denied that the natural advantages afforded to Dental Students by Philadelphia are unsurpassed, if equaled, by any in this country, and therefore, of course, in the world. Apart from the fact of the carefully cultivated clinical facilities and well trained corps of lecturers in the two schools, the extensive dental depots, the well sustained position of the profession, the dental societies, the number of free libraries and cabinets of science, hospitals and infirmaries, open alike to students of dentistry and medicine, make Philadelphia classical ground to those who desire instruction in either subject.

To the professors, the occasion of the opening of a new term is also a matter to which years of experience cannot make them indifferent. The important questions as to whether they have kept pace with the advancement in their departments, whether any shortcomings which may have appeared subsequent to a previous course have been due to a personal dereliction, whether the facilities offered by their school satisfy the demands of the times or compare well with the inducements offered by rival colleges, all combine to sharpen their senses and to spur them on to increased effort.

It is to be hoped that the Professors of the Pennsylvania College will not have been found indifferent to these questions, and that the improvements that they have seen fit, and have been glad to make, and which they are anxious farther to extend as opportunity admits, are such as are demanded by progress, and will satisfy the wants of students. They cordially invite to the preliminary lectures, which will be delivered throughout the month of October, beginning with the first Monday, such gentlemen as may be able to come a month earlier than the beginning of the regular term. We do not think such will regret the expenditure of additional time and expense which it may involve. Besides what may be learned at the lectures during these few weeks, students will acquire a familiarity with details and certain practical points which will enable them to begin fairly without any loss of time at the opening of the regular term. Again, those who are undecided where they will matriculate, will have sufficient opportunity to

enable them to decide which will be to them the more available school.

It has always been the bane of dental teaching that a large number of students enter late in the course, many of them at the very last hour which will be permitted by the rules of the college. It can require little reflection to convince any one of the unmitigated disadvantage of such a habit. There are few subjects of study in any direction, in which the definitions and principles laid down in the first lectures are not of such paramount importance, that if not early acquired by the student, he must go stumbling through the entire subject with an uncertainty which will become to him at least a cause of concern if not a disqualification to pass an examination; while to one who takes advantage of all the facilities offered, a moderate amount of application will enable him to do credit to himself and teachers. We sincerely hope that students will remember these facts, and that where no insuperable obstacles exist they will present themselves punctually at the general introductory lectures, which are given at both dental colleges on the first *day* of November, (not the first *Monday*,) and wherever possible, to take advantage of the clinics and lectures of the preliminary course which opens on the first Monday in October.

At the Pennsylvania College the preliminary lectures will be on the following subjects:

Prof. BUCKINGHAM—Elements of Chemistry, Mondays at 5 P. M.

Prof. WILDMAN—On certain important practical points of Mechanical Dentistry, Tuesdays at 5 P. M.

Prof. BARKER—Alveolar Abscess and Necrosis, Wednesdays at 5 P. M.

Prof. TYSON—Histology, Thursdays at 5 P. M.

Prof. TRUMAN—On certain important practical points of Operative Dentistry, Fridays at 5 P. M.

Prof. MEARS—Visceral Anatomy, Saturdays at 5 P. M.

During October also, the Demonstrators are in attendance at the College, and operations go on as during the regular course.

The general introductory lecture to the course will be delivered at 5 P. M. on Wednesday, November 1st, by Prof. MEARS.

DONATIONS.

We tender our thanks for donations to the College:

To Dr. Wolfe, of Oil City, for two specimens of bicuspid with deposits of salivary calculi at the apices of the roots.

To Dr. J. H. Githens, of this city, for a piece of tartar of unusually large dimensions.

To Dr. A. Wert, of this city, for a duplicate of a rubber plate as a base for a full upper set inserted in a patient's mouth. This plate is very narrow, merely covering the alveolar ridge, and has a slight projection on its under surface at the border, made by what is termed Fulsome's groove in the model. The patient for whom this plate was made had been unable to retain an ordinarily formed plate in the mouth, but with this the adhesion was sufficient for articulation and mastication and it was worn with comfort.

To Mr. Daniel W. Plotner, of Ohio, a student in the College, for a set of monkey's teeth, (natural;) species of the animal not known; the teeth, by the abrasion of the crowns, indicate that the possessor had attained a good old age.

DENTAL NEWS AND MISCELLANY.

The editors have added to this number of the journal a department of Dental News and Miscellany, in which they desire to include any facts of general interest to the profession, such as appointments, organizations of alumni associations, hospitals, &c. They solicit for future numbers, from subscribers and others, any items of this character which they may deem appropriate for this column.

Proceedings of Societies.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

At a monthly meeting held April 11, 1871, the subject considered was

ALVEOLAR ABSCESS.

Dr. JAS. TRUMAN having been appointed to prepare a paper on this subject, remarked, that he had complied with the request of the Association, although he felt he had little or nothing to offer that would add to the general fund of information on this topic.

In the consideration of any subject, correct conclusions may be arrived at by an examination of conditions that precede the final result. In other words, an essay on alveolar abscess would be incomplete without some attention to the preliminary stages. Alveolar abscess, then, is a result of conditions that have

pre-existed and rendered all parts of the tooth structure and adjacent tissues abnormally conditioned. This last stage is, then, dependent on periosteal lesions, and periosteal lesions are generally dependent on those of the pulp. I qualify this, because it is not always the case, as will be demonstrated before the close.

I ask your attention first, to the pulp and its pathological conditions. We may regard the pulp as the remains of that formative tissue, that has served as a matrix to form the main body of the tooth structure—dentine. Its component parts of blood-vessels, nerves and connective tissue, form an organ at once extremely sensitive to all external or internal influences. This extreme sensitiveness to irritation has, as yet, prevented all successful efforts to preserve it, when once exposed. I use this language with a full understanding of its force. From the experience now had, it must be apparent that success in this direction is, and must be, exceptional.

Regarding the pulp, then, as fundamental to the condition of perfect vitality in tooth structure, and inherently necessary to the perfect performance of functions, any obliteration of it must result in lesions in adjacent tissues, more or less aggravated, provided measures be not taken to supplement it by an artificial closure of canal.

Starting, then, from this as our standpoint of investigation, we may legitimately consider :

1st. Is death of the pulp necessary to inflammatory conditions of the periosteum?

2d. Whether inflammation of the periosteum necessarily presupposes the death of the pulp?

3d. Can abscess exist in the periosteum and the pulp not be involved?

As both the first propositions are so interwoven I shall consider them together. It will require no assertion to intelligent practitioners, that the periodontal membrane may become congested without injury to the internal tissue. It is only necessary to refer to the regulation of teeth, to the moving of teeth for the purpose of filling, &c. It is apparent that in these cases the periosteum assumes a normal state immediately after the removal of pressure. The integrity of the pulp is not necessarily involved. In fact, I have never seen a case where pressure of this kind produced destruction of this organ. While this will probably be admitted, the fact that this membrane may be involved in inflammation from disease at a remote part from the apex of the tooth, without affecting the integrity of the pulp, may not be so generally recognized. In proof of this assertion, I need only refer to periosteal lesions occurring at or about the necks of teeth, resulting in no involvement of the pulp. As I shall have occasion again to refer to this I need not now dilate upon it. Suffice it to say, that it must be regarded as a fixed law in the pathology of this membrane, that inflammation, to be rapidly destructive, must proceed primarily from the pulp. That proceeding from any other cause may advance to the suppurative stage, but need not, necessarily, affect the pulp.

The third proposition; can abscess occur at any part of the periosteum and not involve the pulp? If we admit that inflammation can be aroused by external influences at the neck of the tooth, it presupposes the other condition of abscess as a possible contingency. In proof of this, I need only recall the

before mentioned condition of an inflamed periosteum and exudation of pus at the necks of teeth, in which the probabilities of the pulp being affected are quite remote, and will depend entirely on the extent of lesion. If it be confined to a circumscribed area there can be no destruction of the internal organ. If, on the other hand, it should proceed to the apex, the pulp must become involved and its destruction be assured.

As inflammation of the periosteum may take place without destruction of the pulp, the reverse of the proposition is equally true, that death of the pulp may occur and the investing membrane be not affected. But no intelligent dentist need to be told, that both these conditions *must* precede the final stage of *alveolar abscess*.

I assume, then, that while we can have at certain portions of the periosteum inflammation and exudation of pus, genuine alveolar abscess must have a high state of inflammation of that organ, as a pre-existing condition. This, however produced, is found to culminate at the apex of the root, bordering on the foramen of the canal, justifying the conclusion, that the pulp canal and excretions from that cavity have largely to do with producing conditions destructive in their character. What then follows? An increased thickening of the periosteum. The capillaries are congested with blood. The enlargement produces pressure on surrounding parts; they in turn react on the nerve filaments of the membrane, producing an exquisite sensibility that has but few equals and perhaps no superiors. Normally, the periosteum is remarkable for its lack of sensibility. The result of this congested state is an effusion of pus corpuscles between the cementum and membrane, and this tissue is thrown off in the form of a sac. This continued enlargement results in congestion of all surrounding tissues. The formation of pus proceeds more and more rapidly as pressure increases. This is the natural result. Pressure in its turn produces destruction on all vital organisms, in other words, we have absorption. This may take place at any part, but will usually be found at that point of the tissue that affords least resistance. We, therefore, generally find the external wall giving way.

Now that the pus has found an exit, how are we to diagnose that fact? What signs have we to guide us? As before remarked, the intense pressure of the confined pus produces exquisite sensibility with an increased gnawing, but rarely an acute pain. The instant, then, that there is a diminution of this pain, it is certain that an opening has been found into the soft tissues. The usual diagnostic sign, of swelling immediately over the root of the tooth affected, may be the more certain, but I think the other equally so. The latter may not be marked while the former is decided. So certain do I feel this to be that I never hesitate to penetrate deeply in search of the pus, and rarely fail to have it follow the channel made.

Now this is alveolar abscess in its simplest, and may I also say, aggravated form. It is simple, because the end is seen from the beginning. It is serious, because the complications arising from it may be of the most aggravated character.

Now, for a moment, let us examine the condition presented by a tooth subsequent to this diseased action. The root is necrosed at its superior third. In

other words, the pressure of fluid between the membrane and the root has entirely denuded the latter and deprived it of the chance of vitality.

The periosteum may remain, or it may, and frequently does, become shriveled. The dead portion of the root, differing from true necrosed bone, remains attached to the vital portion. It can never be thrown off by natural processes. The foramen also becomes enlarged by the destructive action of the fluids with which it is surrounded, the tissue being readily acted upon after a loss of vitality. This is the extreme condition. The periosteum may remain as a covering to the apex of the tooth, and that it does so is proven by experience.

Having, then, two conditions somewhat dissimilar, we may expect different results. Now, what are these? In the one case we have entire death of the bone and destruction of the periosteum, in the other, I am inclined to think that there cannot be an entire separation of nutritive action; but of this I am by no means certain. I therefore partially theorise in the statement, that I believe the first condition is that in which we meet the largest percentage of failures. Why? The entirely denuded dead root is an ever present source of irritation. It is essentially a foreign body, and all foreign substances produce inflammation in surrounding parts. This I judge can never take place in this location. To my mind, there is little to be hoped for in the treatment of such cases. The usual applications will necessarily fail of permanent good results. They may temporarily produce healthy granulations and apparent return to normal conditions, but subsequent irritation, ever present, must produce its legitimate effects. This I understand as chronic abscess. It is clear, to my mind, that this is the true explanation. On the other hand, where there is any partial denudation, we can produce healthy action and renewed vitality, at least to a large portion of the root. Treatment here may be of permanent benefit. It must be the experience of every operator that these cases are proportionally rare, and that they are exceptional must be true, if the statements be accepted. I do not think it is, as yet, determined that periosteum can reunite to a bone once denuded. The facts are against it, but that it may do so I am not prepared to deny. In no other way can I account for the marked difference in the two described conditions.

I do not think it necessary to enter into the treatment of alveolar abscess. This is familiar to all present; but I do feel it important to impress the necessity of avoiding too frequent applications of irritating remedies. Much harm is done by the reckless use of creosote. This is our most valuable agent when properly administered.

Now, I called your attention, in the fore part of this paper, to a condition simulating alveolar abscess in every respect, except that of extent; this, as before remarked, occurs at the necks of teeth, and is liable to be overlooked, from the circumscribed area it occupies. It is, however, of very great importance. Any diagnosis of disease in teeth that fails to take this into consideration must be correspondingly imperfect. It commences by a feeling of discomfort in the teeth, as though they were crowded. The patient will experience a desire to separate them. Pressure gives temporary relief. The soreness felt in the periosteum is greater than that experienced in normal membrane. If pressure be

made upon the gums, a slight exudation of pus will be perceived. At times the patient will call attention to a peculiar taste in the mouth, and especially around the teeth affected. This, of course, is occasioned by the exudation. The result is the same here as in analogous conditions, at the apex of the root. In both cases it causes necrosis. In the latter the dead tissue is usually circumscribed in extent, progress being made with extreme slowness, but unless treatment will arrest it, it must proceed until it ends in the destruction of the tooth. Now, as I before remarked, it does not necessarily follow that the pulp will be involved. In fact, this organ is not affected at all. Abscess may occur here with a dead pulp but destructive inflammation at the cervical union of the periosteum is not the cause of it. I have examined the pulps of teeth thus affected, and found them in full vitality. This disease is most annoying from the constant exudation of minute quantities of pus, and from that ever-present feeling of irritation.

I have not much to say in regard to treatment. Acting upon the theory, that all dead bone is a source of irritation, we have but little to hope for. My experience has not been prolific in good results. Magitot, who fully describes this disease, recommends weak solutions of chromic acid. I have tried this and all the usual remedies for alveolar abscess with but indifferent results. I must confess to but little faith in any permanent good from such treatment as we are familiar with.

The importance of attention to its manifestations cannot, however, be overestimated. It has largely to do with the irritation at the gums on approximal surfaces, so difficult to treat. Distinction must be made between this and sensibility of dentine. It is a cause of great destruction of tissues between the molar teeth. These, by their liability to pressure from foreign matter working in and around the periosteum and gum, are peculiarly exposed to its effects, but no teeth are exempt. Irritation by the tooth brush or tooth pick may be the producing cause. To the latter may be attributed a large proportion. Absorption of the gum, exposing the periosteum, also is a prolific source of trouble. Once, however, fairly established, I know of no remedy for it, unless we accept the dernier resort in all cases of extraction. In one case recently removed, the inflammation had extended as far as the bifurcation of the molar roots. There the membrane was extensively thickened. The balance of the roots were normal.

That this character of abscess is a source of trouble to the inexperienced I have no doubt, nor do I believe it has received the attention it deserves from the more advanced.

The remote results of alveolar abscess I need not dwell upon. They are familiar to all present. The difficulty of confining the inflammation, in certain cases, is one that necessarily causes much anxiety. In scrofulous and syphilitic subjects this result is always imminent. Early treatment will not prevent it, but it will run its course to necrosis of the alveolar plate in spite of all precautions. Fortunately for us these are exceptional cases, but they are by no means rare. As this, however, involves another subject, I shall confine myself to simply calling attention to it.

What, then, may be summed up as the conclusions arrived at from this very brief dissertation on alveolar abscess?

That true abscess is contingent, primarily, on the destruction of the pulp.

That chronic abscess is caused by the presence of dead bone, and that no permanent good result can be attained by treatment in such cases. When a return to normal conditions is the result of treatment, it must be where entire destruction has not taken place.

That abscess may occur at the cervical union of periosteum and cementum and the pulp be not involved.

Dr. WERT inquired whether pus might not be discharged into the antrum, and desired some information as to the best means of preventing this. He would further inquire how an abscess could be treated some distance from the apex? It seemed to him the position of the lesion rendered treatment difficult if not impossible.

Dr. JAS. TRUMAN knew of no means of preventing a discharge of pus into the antrum except by active counter-irritation on remote parts, or by making artificial openings through the alveolus to the diseased root. Where danger was apprehended this must be the proper mode of procedure.

In the treatment of necrosis of alveolus, resulting from alveolar abscess, he had found nothing better as a daily dressing than phenol sodique. In a severe case, recently treated, involving the superior maxilla from the cuspidatus of the left side to the dens sapientiæ, extending to and involving the floor of the antrum and a portion of the hard palate, he had used nothing else, and was enabled to keep the patient very comfortable until such time as the parts were prepared for the surgical operation, subsequently performed by Prof. Mears. In a diluted form this could be safely left to the patient for treatment.

Dr. BONWILL resorted to the simplest treatment in nearly all cases of abscess. By the continued and oft-repeated applications of caustic remedies nature could have no chance for her life. A secreting sac or necrosed bone were the principal obstructions in the path to restoration. Without entering minutely into treatment, it is enough to make a few suggestions.

Sacs can be treated by either destroying the lining membrane with caustic or cutting to pieces the sac, that sloughing may take place. From one to three applications will suffice.

Many cases can be reached through the foramen of the root. This failing, it is very easy to cut down from the outside to the source, first exploring the fistula for its source, and by scraping the surrounding alveoli or root; if the latter is not too much of a foreign element, success is sure, as more or less of the adjacent tissues are lost, we must not look for immediate healing or suspension of a laudable secretion. The vacuum which nature so much abhors, will take some time to fill. So long as pus is of normal consistence don't interfere with caustics. It stops granulation. All that is called for is to keep the parts clean. Warm water, impregnated with carbolic soap, is injected therein. A tent is now indicated sufficient to keep open the walls until healed at the deepest part. This should be wool, fine zephyr. If too much wool is crowded in, the walls, instead of approaching by granulation on the periphery,

would extend their bounds from absorption by pressure. Where practicable, pressure from without should be made, so as to close the walls and unite them as a simple wound. If the passage is kept open for the waste, while healing, no trouble need be apprehended.

In illustration, a case came under his observation where a first-class surgeon of this city was called in to treat an abscess opening by fistula on the outside of the face. This resulted from maltreatment, by a dentist, who persisted in retaining the tooth. This was the first inferior left molar. The surgeon treated in vain for months. The mother, tired of expense, as well as the great amount of suffering to which her child was subjected, took her to their former dentist and made him extract the tooth. Without any further treatment, other than cleansing, the parts speedily healed, notwithstanding the diagnosis making scrofula the scape-goat.

Many are the instances that could be brought to show that nature, when interrogated, would teach us the true course, and by assisting in that nothing more is needed on our part. The honest surgeon knows full well that all he can do is to remove obstructions, which would have taken nature longer or succumbed in the effort. Let us commence with less assumption and be satisfied with being a mere handmaid.

As to the early treatment of abscess, it is well to distinguish between a case that must and will, and one that may terminate in abscess. If any specific cause is there, abscess is inevitable in almost every case. It may be absorbed, but rarely. When mere irritation exists from prolonged operations, warm or cold, as specially indicated in each case, will remove it. It is unnecessary that an abscess should occur unless there be a specific cause which cannot otherwise be removed. Days of suffering can be saved by resorting to puncture to the apex of the root, as soon as pus has formed at the source, without waiting for it to point near the surface.

Dr. HUEY inquired how Dr. Bonwill would operate where pus had been formed, in order to strike the sac directly. He had found this attempt generally resulted in striking the root.

Dr. WERT could not see how Dr. Bonwill could succeed in injecting through all canals. So many were nearly closed that success seemed to him impossible.

Dr. PETTIT considered it unwise to cease all efforts to inject through the canal simply because of closure. Means should be taken to open them, and endeavor to reach the seat of disease. If he failed to cure the abscess by treating it through the canal, he always treated it from the outside. He had treated a case thus, successfully, when pus had been discharging for two years from first molar.

Dr. W. H. TRUMAN had learned from experience to treat alveolar abscess with considerable caution. They are, at best, very treacherous and deceitful above all things. The fewer promises, as to final results, the better. They, no doubt, are often cured, but very often only relieved for the time being, in spite of the most judicious and persevering treatment. They often remain quiet for months, only to give trouble when least expected. The great difficulty seemed to be to reach the seat of disease. Where the pulp canal is open and a fistulous opening exists, this is comparatively easy, but in the absence of

either, is very difficult. He had found the hypodermic syringe useful in passing remedies through a fistulous opening, but care must be taken to prevent the point entering the tissues. Warm water, and plenty of it, is perhaps the most useful remedy we have. Follow this by creosote, or creosote and iodine. A pledget of cotton, passed into the opening as far as possible, and well saturated with iodine and creosote, should be allowed to remain until expelled. The inflammation may be prevented from becoming excessive by the application of ice. This had answered very well in several cases, where other treatment failed. As soon as the parts assume a healthy appearance, nature should be left undisturbed, but little useful assistance can be given. When the trouble had existed for any length of time, the chance of success is very slim without removing the tooth.

Dr. WILDMAN was gratified at the opinion expressed by Dr. Truman, that too frequent use of creosote was injurious. It acts upon the soft tissue as an escharotic. One application, or when proper discretion is exercised, repeated applications may be made with beneficial effect. But when too frequent we really establish a disease, and the abscess can never heal under such treatment. After one application time should be given to ascertain whether healthy action has been set up. If this has not taken place, then it should be repeated, and not before. The great point in treating diseases, whether of local or general character, is to know what remedies to apply, and when to discontinue their application—the object being to assist the parts affected, or the general system, in the recuperative action, and not to push the treatment farther.

He called attention to a case of a young lady from western New York, which came under his treatment a few years since, who had an abscess in her cheek caused by a diseased molar. This lady had been under treatment by two surgeons, in good standing in the medical profession, for some six months, without any benefit. By the extraction of the tooth the abscess healed up in one week. He was glad the medical profession were at this day giving more attention to diseases arising from defective teeth, and thought such blunders would not now be of such frequent occurrence.

At a meeting held May 11th, 1871, the subject for discussion being

DISCOLORED TEETH,

Dr. JAS. TRUMAN remarked, that he had nothing new to give on this topic. He had still entire faith in the practice introduced by him some years ago, that of bringing an acid in connection with chlorinated lime in the cavity of decay. He believed the use of this process was gradually extending, judging by the letters of inquiry constantly received, and by the still more significant fact that gentlemen of prominence were writing articles on discolored teeth, and giving his mode as the proper treatment, but generally forgetting to give credit. He would again impress upon those who attempt to bleach by this process to remember two important things. The first is, to secure *good chlorinated lime*, and the second, to *avoid the use of steel instruments*. Attention to these two requirements is vital to success. Chlorinated lime, fit to use, is extremely difficult to procure, and hence the failures. Discoloration, doubly intensified,

has resulted from the use of steel instruments. Wood or gold, in the form of spatulas, are the only materials fit to use for this purpose.

Dr. HUEY knew of no other practice equally as good as that introduced by Dr. Truman. He had had partial failure in one case, where he had committed the error of filling the root too far down. In one case much discoloration followed the treatment. He concluded it was caused by acetate of iron. From that time he had used gold instruments, and had no trouble whatever. The instruments were gold spatulas, made to fit a socket handle.

Dr. WILDMAN remarked that it was difficult to procure chlorinated lime good, it was generally found moist. It should be perfectly dry, and should have been kept so from the time of preparation.

In regard to the modification of Dr. Truman's method, of substituting tartaric acid for acetic, he remarked, that the quantity of acid to be used would depend upon the strength of the chlorinated lime. He combined the two together dry, adding but a small proportion of acid at first, and testing to discover whether this quantity be sufficient to eliminate all the chlorine, if not, add a little more. There should be just sufficient of the acid to set free all the chlorine combined with the lime and no more, as an excess of acid would act injuriously upon the dentine. To test, take a small quantity out of the mortar and add a drop of water. When there is a free evolution of chlorine, there is sufficient acid in the mixture to test for an excess of acid; after the chlorine ceases to be given off, add more pure chlorinated lime. If there should be an effervescence follow, it will show that the acid is in excess, and that more of the chlorinated lime should be added to the mixture before inserting in a tooth. When prepared, the mixture should be kept in a closely stoppered bottle.

Dr. HUEY had abandoned Dr. Wildman's mode, in consequence of the difficulty he had found in introducing the lime in the powdery condition.

He had found no operation, in the whole range of our duties, that had given him more credit than this, one single case alone bringing him twenty patients. Before applying the chlorinated lime he surrounds the tooth with rubber dam.

Tr.

ABSTRACT OF THE PROCEEDINGS OF THE
SECOND REGULAR SESSION OF THE WISCONSIN STATE DENTAL
SOCIETY,

Held at La Crosse, Tuesday and Wednesday, July 11th and 12th, 1871.

MORNING SESSION.

The Society was called to order by the President, D. W. Perkins.

The Committee on Membership reported the names of the following dentists as eligible for membership: Drs. William Decker, of Oshkosh; R. S. Wells, of Sparta; D. W. Van Berg, of La Crosse; E. G. Hazelton, of Kenosha; F. A. Williamson, of Red Wing, Minn.; L. M. Gilman, of Beaver Dam, who were severally elected.

After a short address by the President,

Dr. PALMER introduced the following resolution, which was adopted :

Resolved, That the resident physicians, dentists, and members of the press in this city, and also any of the aforesaid professions who may be transient visitors here during the sessions of this Society, be invited to be present and take seats with the body.

The Secretary reported the number of dentists signing the Constitution and paying the initiation fee of \$5 each, thus becoming active members, was twenty. Number of honorary members elected, five.

Amount of money paid over to the Treasurer, (\$100) one hundred dollars.

Orders drawn on the Treasurer, by vote of the Society, \$26.42.

The Treasurer reported the total receipts for the year, previous to the present meeting, \$100.

Disbursements, by bills paid, \$26.42.

Cash advanced to Publishing Committee, for contingent expenses, \$20.00.

Funds in the hands of the Treasurer, \$53.48.

On motion of Dr. WELLS, a committee of three was appointed by the President, consisting of Drs. Wells, Hazelton and Decker, to nominate officers for the ensuing year.

AFTERNOON SESSION.

The Committee on Nomination of Officers, reported the following gentlemen for officers for the ensuing year, who were duly elected :

President—Dr. E. PALMER, of La Crosse.

1st Vice President—Dr. A. Holbrook, of Waukesha.

2d Vice President—Dr. J. C. Lukes, of Racine.

Recording Secretary—Dr. Charles C. Chittenden, of Madison.

Corresponding Secretary—Dr. D. W. Perkins, of Milwaukee.

Treasurer—Dr. A. Solliday, of Watertown.

A committee was appointed to wait upon the President elect and escort him to the chair, where he was received by the retiring President, Dr. Perkins, with appropriate remarks of congratulation. Dr. Palmer responded, and said he was duly thankful to the Society for the honor conferred upon him ; stated that his heart was set upon the Society's success and its object, which was to elevate and bring into a bond of progressive union the dental profession.

The first subject for discussion, "Nature of Dental Caries," was taken up.

Dr. W. H. ATKINSON, of New York City, being present, was invited to open the subject. He said: decay is the result of violation of nature's law during formation. The law of life is action. Health is the result of obedience—decay of disobedience of that law. The cause of imperfect formation of the teeth—the planting of the germs of disease—is mainly the result of misdirected parental affection, which not only fails in passively doing good but actively effects evil, and this has brought into existence the latest upheaval of science—the dental profession.

Dr. CHITTENDEN considered caries entailed upon offspring, and that its development was influenced to a greater or less degree by surrounding influences, which can either increase or decrease its celerity or extent.

Dr. WELLS reported the case of a child four years old in whose mouth every tooth was carious, and asked for the best mode of treatment, with a view to secure a healthy permanent dentition.

Dr. HAZELTON asked whether a disease of temporary teeth would injure the permanent gums?

Dr. ATKINSON thought not at all, if properly treated.

EVENING SESSION.

The discussion of the second subject, "Pathological Condition of Dental Nerves and the best mode of treatment," occupied about an hour, and was participated in by Drs. Palmer, Wells, Decker, Atkinson, Carpenter and others. The tendency of the discussion was to support the proposition that dental nerves in almost every stage of disease, where there was still vitality in any portion of them, could and should be saved.

The use of oxychloride of zinc was universally advocated as the best covering for exposed pulps.

Dr. ATKINSON said, inflammation should be treated on general principles; locally he formerly used creosote, but now advocated in its place thymol, which he had been using with great success. His mode of treatment was this: after removing caries from the cavity, he washed the exposed pulp with salted water, injecting it into the tooth with a syringe; afterward he dressed with thymol until the inflammation subsided, then capped with oxychloride of zinc.

Dr. LUTE TAYLOR, of La Crosse, gave his experience in endeavoring to preserve the life of a dental pulp by the old method, which proved unsuccessful. He stated, that with the use of thymol he had been successful in every case he had undertaken.

Dr. Atkinson was elected an honorary member of the Society by acclamation.

The President then announced the standing committees for the ensuing year.
Executive Committee—Drs. E. W. Foster, R. S. Wells and L. C. Stewart.

Publication Committee—Drs. C. C. Chittenden, C. W. Barnes and William Decker.

Membership Committee—Drs. E. M. Clark, M. B. Johnson and E. G. Hazelton.

Dental Ethics Committee—Drs. D. W. Perkins, N. H. Drew and F. A. Williamson.

The President announced that arrangements had been made for some clinical operations, to which the time of the morning session would be devoted.

WEDNESDAY MORNING SESSION

Was devoted to clinics. Three operating chairs were brought into requisition.

Dr. E. R. E. CARPENTER performed the operation of preparing a large molar crown cavity entirely by means of the pneumatic engine, and demonstrated its superiority over any other instrument ever used for that purpose. He filled with Atkinson's foil, No 120, cutting down and polishing the filling with the engine.

Dr. PERKINS made two beautiful contour fillings in central incisors.

Dr. ATKINSON operated on an exposed pulp, demonstrating his method of treatment for such cases.

Dr. POOR, of Dubuque, Iowa, exhibited a machine for drilling cavities, which, when properly developed and perfected, will probably be a considerable improvement over the old hand drilling method.

Dr. J. TAFT, of Cincinnati, being present, was invited to address the Society in the evening.

AFTERNOON SESSION.

Subject for discussion, "Absorption or Recession of Gums." The discussion was participated in by Drs. Taft, Holbrook, Atkinson and Chittenden.

Dr. ATKINSON, in cases where there was a deposit of salivary calculus, advocated, after removing the deposit, the use of the pneumatic engine, with portepolisher of wood and prepared chalk, after which he used dilute elixir of vitriol, applied at the juncture of tooth and gums, (care being taken to prevent its coming in contact with other parts of the mouth.) He maintained that the acid would not act chemically on the living dental tissue, but only decompose the remaining particles of lime deposit, impossible to be removed mechanically.

Dr. HOLBROOK read a paper on Atrophy and its Causes, for which he was tendered a vote of thanks.

Dr. ATKINSON said the subject was obscure, that exceptions might be taken to the name given the disease, and yet it is appropriate enough for all practical purposes. Atrophy is imperfect organization. There is a great difference in the structure of dentine as seen under the microscope. These pits were never filled by nature; sometimes the *tubuli* passed through the dentine and through the enamel, and a microscopic aperture is left in which impurities lodge and decay is produced, which appears like atrophy but should not be mistaken for it. It is a different disease, but practically requires no different treatment. We should instruct parents, during their children's dentition, to avoid the diseases of childhood, taking good care of the health and feeding the children on wholesome food. As to *treatment*, he recommended that if the atrophy is superficial we should dress down the surface, if deep, or showing tendency to decay, cut out and fill.

Dr. R. F. WELLS then read a paper on "Dentistry *versus* Money," for which he received a vote of thanks.

After discussing the subject at some length the following resolution was adopted:

Resolved, That the Society offer a prize of \$10 for the best written tract on a subject connected with the care of the teeth; said tract to be written in a style adapted to the popular wants.

A committee of three, consisting of Drs. Wells, Decker and Gilman, were appointed to act as judges.

EVENING SESSION.

The chairman of the Publishing Committee presented a bill of M. J. Cantwell for printing 250 copies of the Constitution and By-laws, amount \$22.50. On

motion, the Secretary was instructed to draw an order on the Treasurer for the amount.

On motion of Dr. PERKINS a *per capita* assessment of three dollars was voted, and the Secretary instructed to collect it.

On motion of Dr. HOLBROOK, the Publishing Committee was instructed to secure the publication, in pamphlet form, of the proceedings of the Society from its beginning.

Dr. TAFT then delivered an address, in which he said *inter alia*: "What is the standing of the dental profession to-day? What are we? A profession young but strong, accomplishing even more than it has dared to claim until recently. It has not grown in a hot-bed, but has fought its way through many tribulations, with no assistance from without, yet to-day it challenges the admiration of the world. Within ten years over one hundred societies have sprung into existence, aiding and supporting one another.

"Earnest men always attract attention, and if on the right track will succeed. A means of our advancement is a dental literature. This is not now what it might be, because it is not supported properly by the pens and purses of the profession at large.

"Another powerful influence for our professional improvement are our dental colleges. These should demand a higher standard of qualification for admission and graduation.

"It is delightful to observe that the profession is daily growing more hungry for knowledge; that the more we learn the more we find there is to be learned. Every dentist should possess, and constantly use in his studies, a good microscope."

The chairman of the Executive Committee presented a bill for postage, notice publishing, &c., of \$15.15, which was allowed and an order drawn.

On motion, Dr. Taft was declared an honorary member of the Society.

Dr. PALMER introduced the following amendment to the Constitution:

Resolved, That it shall be the duty of the Secretary to strike from the list of active members the name of any person who has failed to participate in the meetings of this Society and to pay his dues to the same for two successive years; and the person so expelled shall not be restored again to membership, except by a vote of two-thirds of the members present at any regular meeting.

The amendment was laid over.

Dr. PALMER moved to amend the By-laws by inserting the word "three" in place of "five," in Section 9.

Laid over.

Dr. CHITTENDEN offered the following:

Resolved, That this Society, individually and collectively, owe a debt which we know not how to express or repay, to Drs. Taft and Atkinson, for their presence and assistance to us in our deliberations and discussions at this meeting, they having come great distances to be with us. That we offer them our warmest thanks.

Adopted.

Dr. PALMER offered the following:

Resolved, That the thanks of this Society are hereby tendered to the Twilight

Lodge of Good Templars for the use of their Hall during the sessions of this Society.

Adopted.

Dr. WELLS introduced the following :

Resolved, That the thanks of the Society are hereby tendered to Mr. C. F. Wilkins for the use of one of his best chairs during the clinical operations.

The following gentlemen were appointed delegates to the American Dental Association: Drs. C. C. Chittenden, D. W. Perkins, F. C. Williamson, R. S. Wells, S. M. Gilman.

On motion, the Society adjourned to meet at Watertown, on the second Tuesday of January, 1872.

C. C. CHITTENDEN,

Recording Secretary.

SOUTHERN DENTAL ASSOCIATION.

During the meeting of the Southern Dental Association, held in Charleston, S. C., in April, 1871, the Committee on Memorials offered the following resolutions, which were unanimously adopted :

The committee appointed to draft suitable resolutions in reference to the death of Dr. T. J. CROW, of Macon, Ga., and Dr. WARREN JOHNSON, of Savannah, Ga., beg leave to offer the following :

WHEREAS, It has pleased Almighty God to take from us two of our beloved brethren ;

AND WHEREAS, It not only becomes us, but it is our mournful duty to pay a worthy tribute to the memory of those who have been so long identified with us, therefore,

Resolved, 1st, That in the death of our brethren we recognise the hand of an all-wise Providence, and though with grief we mourn their loss, we bow with submission to the decree that has deprived us of those who won our highest esteem by their devotion to the interests of our profession, and who endeared themselves to us by a kindness of heart, which rendered them ever ready to alleviate the sufferings of humanity.

Resolved, 2d, That we give expression to our fervent trust that *our loss has been their gain*, inasmuch as they were ever known as faithful dentists, thorough gentlemen, and upright, patriotic citizens.

Resolved, 3d, That a page in the book of minutes of the Association be dedicated to their memory.

Resolved, 4th, That a copy of these resolutions be forwarded to the several dental journals for publication, and also to the relatives of our departed brethren, with the assurance of our heartfelt sympathies in their bereavement.

(Signed)

H. J. ROYAL,

W. H. BURR,

H. A. LOWRANCE,

Committee.

O. J. BOND, *Rec. Sec. Southern Dental Association.*

Reviews and Book Notices.

The Principles and Practice of Dentistry, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism. By Chapin A. Harris, M. D., D. D. S. Revised and edited by Philip H. Austin, M. D. 8vo, pp. 784. Tenth edition. Lindsay & Blakiston, Philadelphia, 1871.

It would seem a work of supererogation to give an extended review of a production that has now been for thirty years before the profession, but the thorough revision to which it has been subjected, and that by "gentlemen of acknowledged proficiency in their respective departments," entitle it to the treatment usually extended to new publications.

The book opens by a chapter devoted to the history of the cell doctrine, and while as a record of facts it is unobjectionable, it is certainly unworthy a work of the pretensions of this, to treat a subject, so important, with second hand quotations. It indicates either a lack of industry on the part of the compiler or a meagreness of information on the subject he has attempted to treat. We have a high respect for our friend Dr. Tyson's work on Cell Doctrine, and for the faithfulness and correctness of his statements, but it seems to us the bounden duty of an author to make his quotations direct whenever it is possible to do so. This is but just to the author. We also regret to see that the frontispiece, illustrating Dr. Beale's views, as arranged by Dr. Tyson, is taken bodily without credit. These may seem, to some, trifling matters, but they are serious blemishes, and prejudice the intelligent reader into the belief that the same want of care, here manifested, may extend throughout the work.

That portion devoted to anatomy appears to have been carefully worked up, but we fail to see the necessity of increasing the great evil of large books by adding matter that should be sought after in works devoted specially to that branch. It may be of advantage to a class of men to have science reduced to its lowest terms in one book and thus save a library, but it is unprofitable to the general and more enlightened reader, and seriously increases the tax on the pockets.

The portion devoted to the development of teeth is well enough as far as it goes, but why are more recent investigations wholly neglected? We are aware that many regard the necessity for further investigation closed with Goodsir, and this would appear to be the opinion of our author. A difficult subject, such as this, can never be treated thoroughly by one man. It requires combination of varied powers to arrive at correct deductions. The result has been that some of Goodsir's conclusions have not been sustained. An author, therefore, is guilty of scientific inaccuracy, and also does great injury to the unlearned reader, in withholding facts. The names of Robin, Magitot, Waldeyer, Hertz, Dursey, &c., are worthy of mention, and it would have thrown much light on the subject to have given the result of their investigations. This omission seems to us unpardonable, when it is remembered that the same fault has been noticed in previous editions.

Again, in describing the contents of the dentinal tubes, copious quotations are properly given from Kolliker, Tomes, Beale, &c., but no allusion is made to the investigations of Boll,* whom Waldeyer considers as "the first to give precise information regarding the nerves of the teeth." While this is not strictly true, as much work has been done in this direction anterior to his in this country, yet so clear, confirmatory and superior is this to all others that we are surprised that no mention has been made of it.

On p 216, in writing of the effects of Chloride of Zinc, our author says: "That although a powerful escharotic, it does not, as all arsenical preparations are liable to do, produce any deleterious effect on the pulp of the tooth." We must enter our protest against this as a dangerous error, and liable to lead some astray. It would seem hardly necessary to bring forward arguments to prove that the irritating effects of chloride of zinc may reach the pulp

*F. Boll, Untersuchungen über die Zahnpulpa, Arch. J. Mikrosk. Anat. iv, 1868. Translation, *Cosmos*, Vol. XII, No. 3.

through thin layers of dentine. Theory sustains it, and facts have demonstrated it over and over again. It is true, that when the pulp is thickly covered, such results have not been noticed, but even here it is not safe to affirm that the pulp may not be destroyed by it. It is well known that thermal influences may effectually destroy this organ through very thick layers of dentine, and the same result may be accomplished by any other irritant. A wide distinction must be drawn between exposing the pulp to the direct action of chloride of zinc, as in capping with oxychloride, and exposing it to the same irritation when confined to an unyielding cell. On the next page the erroneous statement is made that, "one of the best non-conductors in use is the oxychloride of zinc." The experience of the writer of this leads him to infer that it is one of the *best conductors*. In proof of this it is only necessary to apply cold or heat to a tooth capped. The response is immediate, and furnishes one of the best tests to prove the vitality of that organ.

On the same page (218,) the author states, that "The application of nitrate of silver for sensitiveness, arising from loss of substance or from exalted sensibility of exposed dentine, has proved successful." We would inquire, for how long? The cause of sensibility of abraded dentine may be looked for in the action of acid secretions. When these are present all such surfaces will be sensitive. Escharotics may for a period destroy the external layer of sensation, but it will most surely return as soon as the destruction has reached the untouched vital portions, and this will continue so long as the acid depositions are allowed to remain. A modification or entire change of these conditions is a prerequisite to any permanent relief.

In the chapter on "Alveolar Periostitis," the author, amongst other remedies, says that Rhigolene spray "has been applied until the gum about the affected tooth becomes blanched." As the writer of this originally recommended this in periostitis, it may be well to state that it should not be used on the gum but on the tooth. The object aimed at, of contracting the capillaries at the apex of the tooth is more effectually accomplished by this means, whilst the other, to a large extent, retards, if it does not destroy, the full effect sought to be produced.

The chapter on "Necrosis of the Teeth" can scarcely be considered full, even for a text book, and especially is this applicable to that portion devoted to treatment. The old statement is here repeated, that chloride of lime will do the work of bleaching, and the further rather strange advice given to allow it to remain "*for five, ten or fifteen minutes at a time.*" We doubt very much whether the writer of this has practically tested the amount of bleaching performed by this agent in that limited period. As chloride of lime depends upon the chlorine it contains for any bleaching properties it may possess, and as that is only set free by the action of an acid, it will be readily seen that the bleaching effects must be very limited when thus applied. As the treatment of this class of teeth has been the most difficult in the whole routine of practice, it would seem to be the duty of the author to have made himself familiar with modes of practice that have at least the merit of having been successful.

The same fault, that we have thus far found, seems to run through all this portion of the work, and especially is this true of the chapter devoted to the consideration of Caries. We have before us the fourth edition, published in 1850, and, if we except condensation, the present gives no advanced ideas. The whole subject is sought to be explained in the following paragraph, (p. 279), originally written by Dr. Harris.

"The doctrine that the decay of the teeth is the result of the action of external corrosive agents, was first distinctly promulgated to the dental profession of the United States about the year 1821, by Drs. L. S. and Eleazer Parmly. These agents may consist of menstrua formed by the decomposition of acetous fermentation of the remains of certain aliments lodged in the interstices of the teeth, or of the fluids of the mouth, especially the mucous, in a vitiated or acidulated condition, or of acids administered during sickness or used as condiments. According to the tables of elective affinity, there are but four acids which precede the phosphoric in their affinity for lime, namely, the oxalic, sulphuric, tartaric and uccinic. It may hence be argued that none of the other acids are capable of

decomposing the teeth, or of injuring them in any other way, but daily observation proves the erroneousness of this conclusion. It has been shown by experiment that all acids, both vegetable and mineral, act more or less readily upon these organs. But we are disposed to believe that caries of the teeth results more frequently from the action of some acid contained in the mucous fluids of the mouth, than from that of acid medicines or condiments, or even from such acids as may be generated by the acetous fermentation of particles of certain kinds of food lodged between the teeth. The author is of opinion, therefore, that if all the functional operations of the body were always healthily performed, caries of the teeth would seldom occur."

That this is in part a true statement cannot be denied, but it does not exhibit the result of more recent investigations. The labors of Leber,* Magitot and others, have now been long enough before the world not to have escaped the notice of the present author. The insufficiency of the external acid theory, to explain existing conditions, has long been plainly evident. The directly producing cause must be looked for in other directions. Leber proves conclusively, and his observations have been repeatedly verified by the present writer, that caries is not directly a resultant of external acid conditions. Indirectly they are. Whatever may be thought of the fungi theory advocated, no one will dare assert, that the effects produced by the ravages in caries can be produced by the simple action of any acid. Tomes has acknowledged this difficulty as well as other writers. It may be regarded as axiomatic that when a theory meets all the requirements of a given case, and is capable of demonstration, it should be accepted. Observation and experience have abundantly confirmed the investigations of Leber and Magitot, and in our judgment the cause of caries is very clearly made out. Some points still require elucidation.

In the chapter on Materials for Filling, p. 300, in writing of Tin, the author says: "Under favorable circumstances, if skillfully introduced, it will prevent the recurrence of caries. But if the fluids of the mouth are vitiated, it soon oxidizes and turns black, and then, instead of preventing, it rather promotes a recurrence of the disease." This is nearly as written by the original author, but as it is endorsed by the present, and is supposed to represent the general opinion, we must take exception to it. It was undoubtedly true at the time Dr. Harris wrote, but since that period a great advance has been made in the mode of manipulating all our materials, and tin has received the benefit of this progress. Next to gold we have nothing better than tin; that it oxidizes to some extent is true, but that it thereby ever promotes a recurrence of the disease we emphatically deny. This metal has suffered by bad manipulation, but when properly introduced will resist the action of caries for an indefinite period. It is this constant depreciation of one of the most valuable metals that has led to the wholesale use of amalgam. The balance of the chapter on filling is sufficiently clear for all practical purposes. The difficulty of explaining this operation and rendering it intelligible, without practical examples, is very great. It is to be regretted that the present Editor did not omit the cut on p. 344, fig. 121. The manner of holding an instrument, as there represented, we had hoped had been abandoned long ago. The true artist, in performing this operation, has no need of more force than can be accumulated in the two fingers and thumb. He must truly be a bungler who would take the instrument as he would a sledge hammer. It is no marvel that patients frequently declare that they prefer malleting to hand pressure, if such gross means are generally used to introduce gold. We would call the Editor's attention to an error of statement in this chapter, wherein he ascribes to Dr. Atkinson the merit of introducing the mallet. Whatever that gentleman deserves, and he does deserve much credit for his labors, he is not entitled to this. For confirmation of this we would refer to Koecker's and Fitch's works. It will be seen that the mallet is a very old instrument in dental operations.

That portion of the work devoted to mechanics has been carefully prepared by Prof. Austin, and is, in most respects, worthy of the highest commendation. We cannot refrain from quoting the following paragraph, p. 594. The lesson it teaches should be carefully pondered by every student.

* Translation of Leber's views, DENTAL TIMES, Vol. V, No. 4.

“Artificial teeth should imitate the natural organs; yet there is a perfection of form and arrangement which is not advisable to imitate. To disarm suspicion as to their artificial character, it is often desirable to impart a measure of irregularity. An overlapping lateral, a missing bicuspid, a worn canine, an incisor, bicuspid or molar apparently decayed or filled with gold, an exposed neck from absorption of alveolus, are among the legitimate devices of the skillful mechanic who has the ‘art to conceal art.’ If there are any defective natural teeth remaining to be matched, still higher art is required. A perfect porcelain incisor is no fit companion for one that is partly broken, decayed and discolored, and since no art can make the defective tooth perfect, and yet the patient retains it, there is no alternative but to give so much imperfection to the artificial one as shall take away that striking contrast which so painfully offends our æsthetic sense of fitness.”

We are surprised that the author has neglected a very important matter, that of rimming plates. This operation is the cause of more perplexity to beginners than all others combined, yet, when understood, is very simple. When properly performed, it not only adds to the strength of the piece, but increases immensely its beauty.

The volume closes with “Defects of Palatine Organs,” by Prof. Kingsley. This process has been so long before professional readers that it requires no further notice.

It will be seen that we have endeavored to plainly set forth some defects that mar the general good results obtained, but these are not given in any captious or fault finding spirit. As a whole, we consider this work far superior to any that have preceded it, and at the present time the only one that pretends to give a general survey of dental science. We congratulate the accomplished editor on the success attained, and hope that further editions will exhibit still greater improvement.

Hand-Book of Dental Anatomy and Surgery, for the use of Students and Practitioners. By John Smith, M. D., F. R. S. E., and F. R. C. S. E., Surgeon-Dentist to the Queen, &c. Second Edition, 12mo, pp. 176. London, J. & A. Churchill.

The first edition of this little work made its appearance in 1864, having been prepared by the author to supply the want felt by himself and his students, of a concise work on the subjects of Dental Anatomy and Surgery. For some years previously he had delivered annually a course of lectures on these subjects, before a class composed of advanced medical students and the ordinary assistants of dental practitioners receiving instruction in a medical school. Being but a part of a course of lectures on medical topics, the instruction was, of necessity, limited in character, and hence the comprehensive treatises on dental anatomy and pathology which existed, were not of a character to suit the requirements of the class.

In the introductory chapter the author describes the principal forms of teeth in the lower animals, speaks of the variations in number, position, form and uses. They vary in number from “the countless teeth of some fishes to the solitary tooth of the monodon or narwhal;” in position they are not confined to the jaws, as in man, but are “scattered over the bones of the mouth, tongue, gullet, and, in some lower animals, situated in the stomach;” in form they are infinitely diversified—from simple flat plates they are modified until they assume the shape of the elephant’s tusk or the whole bone of the cetacean family; in their uses they serve a great variety of purposes—of attack, of building, of climbing and progression, of prehension, and even of digging, as in the extinct *dinotherium*. This chapter gives, in a very concise and interesting manner, the comparative anatomy of the teeth. The remaining chapters are devoted to the consideration, in a condensed form, of the usual topics discussed in works on dental anatomy and surgery, such as the development and growth of the teeth, the general anatomy of the maxillary apparatus, diseases of the teeth, extraction, filling and prosthetic dentistry. We observe with pleasure that a chapter has been given to “Dentition, its Disorders and their Treatment,” and one also to “Chloroform and other Anæsthetics in Dental Surgery.” The first was undoubtedly prepared for the benefit of the medical students, who, as physicians,

have to deal with the teething process. In this chapter the fact is prominently developed that dentition is a natural and not a morbid process, and that it may be associated with morbid conditions existing in other parts of the organism which are independent of this condition, but which may be improperly imputed to its agency. In considering the nature of the symptoms attending laborious dentition, the organic condition of the structures implicated must be regarded. Pain, the most prominent symptom, is not solely due to the pressure exerted by the teeth on the gums in the effort made to pass through these structures, but may exist in the teeth themselves, which, at this stage of their development, are endowed with a high degree of vascularity and sensibility. The pain may be of a neuralgic or an inflammatory character, and it is essential that its exact nature should be determined in order to arrive at a proper course of treatment. Scarification is only indicated when inflammatory action is present, and this condition can be detected by inspection of the affected parts.

The chapter on "Chloroform and other Anæsthetics" is a resume of what is known up to the present time on these subjects. The various methods which have been employed for the production of local and general anæsthesia are examined and commented on. The remarks upon the employment of the leading anæsthetic, chloroform, are well timed and judicious; they could be only improved upon by the advice to discard this agent entirely from use in dental surgery. It is not suited for the production of anæsthesia in dental operations, as it is important that for safety the patient should be influenced by it when in the recumbent position.

While opposed, as a rule, to the use by students of "hand-books" as short roads to knowledge, we still feel that we can consistently commend this work to their attention.

M.

Report on Dental Pathology and Surgery. Read before the American Dental Association, August, 1870. By W. H. Atkinson. Pamphlet, 8vo, pp. 16.

We confess that after reading this pamphlet with some care, we were at a loss how to look upon it. Our first impression was that it might be a burlesque on certain crude efforts which some unfortunate individual had made in the same direction; but on further consideration we could only conclude that the author was in earnest, and admitting this to be the case we were surprised that any body of intelligent men, sitting in convention, should remain during its perusal. The following extract, while serving to give an idea of the contents of the paper, may serve also to amuse the reader. It certainly cannot instruct him:

"All organization is the result of alternate domination and submission, or compromise of dominion of two tendencies, namely, centripetality and centrifugality, or togetherness and apartness. The full dominion of the former in planetary substance results in crystal; of the latter in ether. The full or complete dominion of togetherness in the territory of consciousness results in knowledge; that of apartness in diffuse feeling. Rapidly passing from one of these states or extremes of tension to another, without noting the intermediate stages of physical or mental progress, has given rise to the doctrine of cataclysms or floodings, in which all traces of stages of togetherness and apartness were obliterated, and a new order instituted, in accordance with the whereabouts of the observers when they gave attention to the status in which they are."

Here and there there is found a glimmer of truth, but in the main the paper is a tissue of absurdities.

"*Taking Impressions of the Mouth,*" to which is appended a chapter on "*Porcelain Teeth,*" from the new edition of "*Harris' Principles and Practice of Dentistry.*" By James W. White. 8vo, pp. 54. Samuel S. White, Philadelphia, 1871.

Twenty-seven pages of this book are devoted to taking impressions and to description of materials used. It will no doubt be of great assistance to the beginner, and the experienced may find many useful hints to aid in practice. The balance of the volume is occupied by a chapter on Porcelain Teeth, profusely illustrated.

It would, however, have been simple justice, if the author had given due credit to the dentists whose views have been incorporated throughout the volume.

Books and Pamphlets Received.

HEADACHES: THEIR CAUSES AND THEIR CURE. By Henry G. Wright, M. D. From the fourth London edition, 12mo, pp. 139. Philadelphia: Lindsay & Blakiston, 1871.

THE PHYSICIAN'S PRESCRIPTION BOOK: containing lists of the terms, phrases, contractions and abbreviations used in prescriptions, with explanatory notes; the grammatical construction of prescriptions, &c.; to which is added a key containing the prescriptions in an abbreviated form with a literal translation, for the use of Medical and Pharmaceutical Students. By Jonathan Pereira, M. D., F. R. S. Fifteenth edition, 18mo, pp. 286. Philadelphia: Lindsay & Blakiston, 1871.

Selections.

DRAWING A LION'S TOOTH.

The Glasgow (Scotland) *Herald* gives an interesting account of the recent extraction there of a lion's tooth. It says: "The visitors of Mander's menagerie recently witnessed a performance no less remarkable than exciting—the extraction of a diseased tooth from the jaw of a vigorous, full grown lion. Some time ago Maccomo, the famous tamer, long connected with Mr. Manders' establishment, had, while causing the animal to perform its usual drill, exposed himself to one of those fierce attacks which, in the course of his perilous occupation, he had not unfrequently faced. Experience had taught him that in such cases a stroke with his rod delivered on any part of the head produced little effect—that his only chance of escape from the threatened attack lay in a vigorous blow across the jaw or muzzle of the animal. Such a blow had been delivered on the occasion referred to; but while Maccomo fortunately succeeded in relieving himself from danger, the lion showed signs of having received considerable injury. Gradually he became low spirited; he only ate his food with difficulty: and latterly what he did eat required to be cut into small pieces. Last week Mr. Manders mentioned his concern for the animal to his family medical adviser in Glasgow—a gentleman who occupies a high place in the profession and in public estimation in the city—and it was suggested in reply that a tooth might have been injured, or the jaw broken, by the blow struck by Maccomo. Further, the doctor volunteered to subject the lion to a surgical operation provided Mr. Manders could properly secure the animal. After some hesitation, prompted by a consideration for the daring doctor's safety, the offer was accepted, and it was arranged that this altogether novel experiment in dental surgery should be attempted.

"In the course of the afternoon the fore paws of the lion were caught and bound to the bars of the cage by strong ropes. Afterward the head was 'lassoed,' and the ropes were fastened around the animal's neck in such a manner as to prevent, as far as possible, the movement of the head, and to force the mouth close up against the bars. Thus secured, the lion was allowed to exhaust himself by his struggles to shake himself free, and terribly fierce and violent was the rage he displayed. The poor brute howled frightfully, and the cage shook as if it would go to pieces under stress of the plunging and tearing. When the doctor, accompanied by a medical friend, arrived, he mounted on a tub in front of the cage, and immediately set to work. A piece of wood was placed to the lion's mouth, and at once the beast made a snap. Then a pitchfork was held up, and, placed in the mouth, kept it open, while the inside was thoroughly washed. Afterward the doctor, pushing his arm between the bars into the lion's mouth, and running his hand over the teeth, found one of the grinders loose, and concluded that this was the cause of the animal's trouble. A terrible struggle ensued, during which every person present, with the exception of the doctor himself, showed great alarm for his safety.

“The lion plunged more vigorously and howled more frightfully than ever, tossing his head from side to side, and at times forcing his hinder as well as his front paws against the bars. But ultimately the doctor triumphed over all difficulties and dangers. By means of powerful forceps he extracted the loose tooth, which was found broken and diseased near the root. When the task had been completed the lion sank down completely exhausted, and while he lay steady and quiet the doctor cut the flesh over the jaw, and found the bone severely injured, if not broken. It was, however, deemed inexpedient to subject the beast to another operation, and the excision of the injured bone has been postponed until it is seen whether it occasions any serious inconvenience. The latest bulletins announce that the monster patient is making satisfactory progress. Meanwhile, the doctor has prescribed beef tea and claret, and, under such nourishment, it is to be hoped that the lion will soon recover health and vigor. Altogether, including the hour during which the animal was bound before the doctor set to work, the ‘operation’ lasted about an hour and a half.”

[We suggest that when the next operation is to be performed, the lion shall be placed under the influence of an anæsthetic agent. This has been done in more than one instance, and has proven effectual. We read an account of a case reported in one of the English medical journals, in which it became necessary to amputate the tail of a lion, belonging to the Dresden Zoological Gardens. The animal was fully influenced by chloroform, and the surgeon entered the cage and performed the operation calmly and deliberately. It would certainly seem desirable to avoid submitting the poor brute to such pain and discomfort as the description indicates —J. E. M.]

EXOSTOSIS.

At a recent meeting of the Biological and Microscopical Section of the Academy of Natural Sciences, DR. JAMES TYSON exhibited a *section of a tooth showing hypertrophy of the cementum, or exostosis*, which he thought interesting in connection with the discussion which took place at the meeting reported in *The Medical Times*, No. 13, April 1, 1871. At this meeting it was said that, since cementum is not true bone, the term *exostosis* is not the proper one for this hypertrophy. At that time Dr. T. said that he thought the only objection which could be urged against the position he claimed for cementum—that of true bone—was the absence of the Haversian canals. This he considered due to the fact that the quantity of cementum was usually so limited as not to require additional provision for blood-vessels, its most remote points being still sufficiently near the periosteum to be nourished by the capillaries of the latter tissue in connection with the intermediate canaliculi of its own structure. He thought that if the cementum were present in greater quantity, Haversian canals would be furnished. The specimen he now exhibited confirms the view then taken. It presents an abnormal increase of cementum, apparently beyond the power of the periosteum to nourish. Accordingly there are supplied Haversian canals, of which six undoubted transverse sections can be counted, and two or three of more doubtful nature. In two there can be seen an evident approach toward concentric arrangement of the lacunæ, which, although by no means so regular as is that generally met with in bone, is still plainly discernible. In two situations, again, the Haversian canals are evidently vertically cut.

After all, this view is only that which is held by the authorities best conversant with these matters. Thus, in the American edition of Mr. John Tomes' excellent work on Dental Surgery, p. 494, we have the following with regard to cementum:

“The occurrence of vascular canals (Haversian canals) is, to a certain extent, exceptional, being dependent upon the presence of a larger amount of cementum than is usually found in perfectly healthy teeth. Their presence is, however, not necessarily an indication of disease, for when two contiguous roots are united by the intervention of cementum, a vascular canal will not uncommonly be found to traverse the medium of union.”

Cementum is compared by the same author to "primary bone," or bone which has been developed in temporary cartilage, or upon the surface of existing bone, in which also the relation of the Haversian canals to the lacunæ and canaliculi is stated to be less definite, and that the latter are directed with less regard to the position of the contiguous vascular canal: whereas, in "secondary bone," or bone which has been developed to supply the place of pre-existing bone removed by absorption, the lacunæ partake of the concentric disposition, and direct a large portion of their canaliculi toward the Haversian canal.

These facts, taken in connection with the statement made by the same author,* that when the layer of cementum is thin the *lacunæ* also are altogether absent, and even *canaliculi* do not appear until a certain thickness is attained, Dr. T. thought would sufficiently confirm the view taken at the previous meeting.

The specimen was prepared by Prof. E. Wildman, of the Pennsylvania College of Dental Surgery, and belongs to him. The observation was also primarily made by him, his attention having been directed to the subject by the report of the remarks of Dr. T. in *The Medical Times*.—*The Medical Times*, July 15, 1871.

PRESERVATION OF TINCT. KINO FROM GELATINIZING.

BY J. W. WOOD, ROKEBY, DEL.

Among all our tinctures, perhaps there is not one so liable to deteriorate by exposure or by long keeping as tincture of kino, made in accordance with the U. S. Pharmacopœia. Its well known property of gelatinizing in a short time—a property which yet remains to be investigated—being thereby rendered inert, precludes it from being as extensively used as its virtues would seem to warrant. This property renders it inadmissible, when we desire a reliable tincture, to prepare it in large quantities.

The pharmacopœia formerly directed it to be prepared with dilute alcohol as the menstruum; but later it was thought to be of advantage to increase the proportion of alcohol to two-thirds; yet it is doubtful if there was much gained by this change.

I would therefore submit the following mode of preparation, which I consider, from the experience I have had, will meet with the desired end, and up to the present time results do not seem to disprove it. It is as follows:

Take of—Kino, in fine powder, oz. $1\frac{1}{2}$;
Alcohol, 835, fl. oz. 8;
Aquæ, fl. oz. 4;
Glycerinæ, fl. oz. 4

Mix the alcohol, water and glycerine together, and having mixed the kino with an equal bulk of clean sand, place the mixture in a percolator and pour on the menstruum.

This menstruum seems to thoroughly exhaust the drug of its astringent principle, and also makes a nice looking preparation.

Some which I made on the sixteenth day of July, 1870, was exposed to the influence of the atmosphere, the stopper of the bottle containing it having been removed for several months, so that it had evaporated to at least two-thirds; yet it remains as good as when freshly made, without any apparent tendency to gelatinize.

The menstruum might be somewhat modified, perhaps, with advantage; as, for instance, by using proportionally less alcohol and more glycerine and water, or *vice versa*. At any rate I will give it for what it is worth, adding at the same time the suggestion—and it is only a suggestion—that the same menstruum be employed in preparing tinct. catechu, which, though not so liable to gelatinize as tinct. kino, yet sometimes does so—*American Journal of Pharmacy*, August, 1871.

* Tomes, op. cit., p. 493. In Mr. Tomes's lectures, published in Vol. xxxvii (1846) of the *London Medical Gazette*, will be found a drawing in which are delineated the "vascular canals" coursing the dentine.

PLUGGING THE NOSTRILS AS A PRECAUTIONARY MEASURE.

M. Verneuil, in a paper published in the *Bulletin Generale de Therapeutique*, for May 30, recommends plugging of the posterior nares as a precautionary measure in all cases of operation on the face, where there is danger of the passage of blood into the larynx. Besides preventing this, as long as the soft palate is uninjured, the plugging also, M. Verneuil says, enables chloroform to be given during the whole operation. It ought to be done before the induction of anæsthesia is commenced.—*British Med. Journal*, July 8, 1871.

Dental News and Miscellany.

AMERICAN DENTAL ASSOCIATION.—Some of our readers may be surprised to find no report of the Proceedings of the National Association in this number of the "TIMES." We have only to state in explanation that we would have been truly glad to have published a report had one been sent us. None, however, was received.

DENTAL LECTURES IN THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.—The Faculty of this College, feeling the importance of some knowledge of dental medicine and surgery to the country physician, will have a practical dentist to deliver lectures in that department "Diseases of the teeth and mouth will receive an attention that would be impossible for them to receive in the general lectures upon surgery."—*Announcement*.

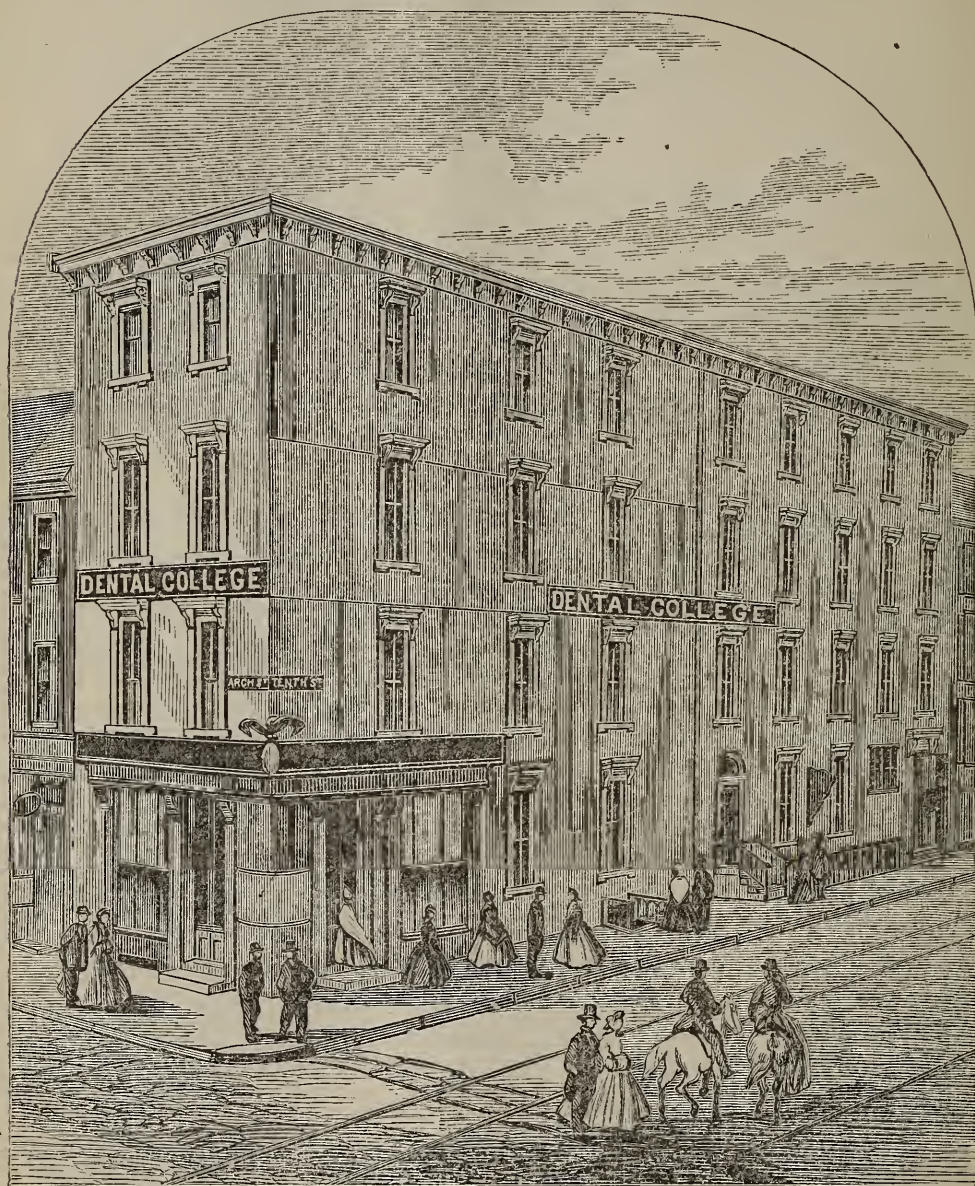
It is questionable whether, in the present advanced, though still imperfect state of dental education, such an arrangement as this will be of advantage to the school, to physicians, or to those who are to become the subjects of their dental surgery; for those who desire a thorough dental education will attend the regular dental colleges, or such medical schools as have a full corps of dental professors. Moreover, dentistry has become so thoroughly known that it is doubtful whether people will be satisfied with any but properly educated dentists, except in cases requiring immediate extraction, under circumstances where the services of a dentist cannot be obtained; and for such operations it seems scarcely worth while for the already over-worked medical student to attend a special course of lectures.

THE DENTAL HOSPITAL.—The festival of this institution was held on Thursday evening, the 25th inst. W. H. Smith, Esq., M. P., in the chair. The meeting was largely and influentially attended, and due recognition was given to the institution, the only real school of dentistry in the kingdom. Its connection with the introduction of nitrous oxide as an anæsthetic should not be forgotten. Upwards of £500 (\$2,500) was subscribed.—*Medical Times and Gazette*, April 29, 1871.

DENTISTS IN THE UNITED STATES.—There are said to be 13,000 dentists in the United States, and nine dental colleges. We are aware of the existence of no dental schools in Europe, though in England some of the hospitals have lecturers on dental surgery attached to them.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.



TRUSTEES.

HENRY C. CAREY, PRESIDENT,	S. DILLINGHAM, D. D. S.,
W. L. ATLEE, M. D.	G. R. MOREHOUSE, M. D.,
ELLERSLIE WALLACE, M. D.,	THOMAS WOOD,
BENJAMIN MALONE, M. D.,	HON. W. S. PEIRCE,
W. W. FOUCHE, D. D. S.,	GEORGE TRUMAN, M. D.,
J. D. WHITE, D. D. S.	CHARLES HAMILTON, SEC'Y.

FACULTY.

T. L. BUCKINGHAM, D. D. S.,
PROFESSOR OF CHEMISTRY.

E. WILDMAN, M. D., D. D. S.,
PROFESSOR OF MECHANICAL DENTISTRY AND METALLURGY.

G. T. BARKER, D. D. S.,
PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS.

JAMES TRUMAN, D. D. S.,
PROFESSOR OF DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

JAMES TYSON, M. D.,
PROFESSOR OF PHYSIOLOGY AND HISTOLOGY.

J. EWING MEARS, M. D.,
PROFESSOR OF ANATOMY AND SURGERY.

E. R. PETTIT, D. D. S.,
DEMONSTRATOR OF OPERATIVE DENTISTRY

C. E. EDWARDS, D. D. S.,
DEMONSTRATOR OF MECHANICAL DENTISTRY.

W. R. MILLARD, D. D. S.,
ASSISTANT DEMONSTRATOR OF OPERATIVE DENTISTRY.

A. B. ABELL, JR., D. D. S.,
ASSISTANT DEMONSTRATOR OF MECHANICAL DENTISTRY.

E. WILDMAN, DEAN,
 1205 Arch Street.

 PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Sixteenth Annual Session, 1871-'72.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, when ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability. During October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on Wednesday, the first day of November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation, and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND MICROSCOPIC ANATOMY.

The lectures from this chair will include human physiology, histology and physiological chemistry, with such portions of comparative physiology as are essential to a comprehensive understanding of the subject. The doctrines of life and organization will be appropriately considered. The course will be amply illustrated by appropriate diagrams, chemico-physiological experiments and vivisections, as well as by microscopical demonstrations.

ANATOMY AND SURGERY.

The instruction in this department will embrace a systematic course of Lectures on Descriptive and Surgical Anatomy, fully illustrated by dissections on the *cadaver*, preparations, models, drawings, &c.

The minute anatomy of the various organs and tissues of the body will be shown by the class microscope, and particular attention will be given to the demonstration of the anatomy of the head and face.

Clinical instruction in the diagnosis and treatment of the surgical diseases of the mouth will be given once a week by the incumbent of the chair. Students will thus have the opportunity of studying oral diseases, and witnessing the operations adopted in their treatment.

CLINICAL INSTRUCTION.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the demonstrators.

IN THE OPERATIVE DEPARTMENT.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

IN THE MECHANICAL DEPARTMENT.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

PRACTICAL ANATOMY.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

HOSPITAL CLINICS.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEES.

Matriculation, (paid but once,) - - - - -	\$5 00
For the Course, (Demonstrator's ticket included,) - - - - -	100 00
Diploma, - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Gray's, Leidy's, or Sharpey & Quain's Anatomy; Kirke's Physiology, (English edition); Dalton's or Flint's Physiology; Tyson's Cell Doctrine; United States Dispensatory; Pereira's or Stille's Therapeutics; Fownes Elements of Chemistry; Brandt & Taylor's Chemistry; Flint's Practice of Medicine; Tanner's Practice; Tomes' Dental Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the same subjects.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

For further information, address

E. WILDMAN, Dean,
No. 1205 Arch Street, Philadelphia.

BOARD can be obtained at from \$4.00 to \$8.00 per week.

ALL THE INSTRUMENTS AND TOOLS required can be procured for from \$15.00 to \$20.00.

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA, PA.

The regular winter session will begin on the second Monday in October, 1871. Free Preliminary Lectures open on the 4th of September and continue until the beginning of the regular course. A supplementary course is given during April, May and June, illustrated by bedside clinics at the Philadelphia Hospital, also by the clinics of the College and various hospitals of the city. Every facility will be afforded to the student. Board, \$4.50 to \$6 per week. For announcement containing full particulars, address

B. HOWARD RAND, M D.,

Oct'71-1yr.

DEAN OF THE FACULTY.

M. L. FREDERICK,

Engraver of

Seals, Card and Door-Plates,
153 South Fourth Street,
PHILADELPHIA.

THE
DENTAL TIMES.

VOL. IX.

PHILADELPHIA, JANUARY, 1872.

No. 3.

Original Communications.

ON THE DISTINCTION BETWEEN EPULIS AND MYELOID TUMORS
OF THE JAW.

BY JAMES TYSON, M. D., LECTURER ON MICROSCOPY AND URINARY CHEMISTRY IN
THE UNIVERSITY OF PENNSYLVANIA.

It is questionable whether there are two sets of morbid growths more widely different in their minute structure, and at the same time more similar in their gross appearances, than fibrous tumor of the jaw and myeloid tumor of the same parts. Hence no mistake is more common with surgeons or more excusable in them, than to confound the two, myeloid tumors being constantly removed by them for epulis. And, indeed, if the views of the greatest of modern pathologists be correct, although widely different in their microscopic elements, they partake intimately of the same nature. For while fibrous tumors—of which epulis is only an example, thus named from its situation and resemblance to the gum (επωλις, from επι, and ουλον, the gum)—are typical connective tissue tumors, the myeloid tumors (μυελωδης, marrow-like) of Paget, are placed by Virchow in the series *sarcoma*, a term used by him to indicate a group of tumors “the tissues forming which belong to the series of connective substances, but which are distinguished from the tumors formed of the connective tissues by the preponderating development of the cell-elements.” That is, primarily derived from the connective tissues the direction of development is in that of proliferation of the connective tissue cells and the resulting preponderance of their direct offspring, instead of that of the production of the fibrous element. In the proportion of these elements there is every gradation, from that just short of the pure fibrous tumor to that of the myeloid tumor which is almost purely cellular, and which represents the *riesen-zellen-sarcoma* or giant-celled-sarcoma of Virchow.*

This claimed similarity in their nature is supported also by the results

* See also a paper by the writer on Recurrent Fibroid Tumors, or Spindle-celled-sarcoma, in the Pennsylvania Hospital Reports, Vol. II, 1869.

of treatment, for it is found that after extirpation, the so-called epulis and myeloid tumor of the jaw are about equally prone to recur, and that neither, is, as a rule, likely to return if care is taken to remove all traces of the growth.

As a matter of prognosis, therefore, their previous distinction would not seem to be very important, though no less desirable when considered with a view to a completeness of our knowledge of their natural history.

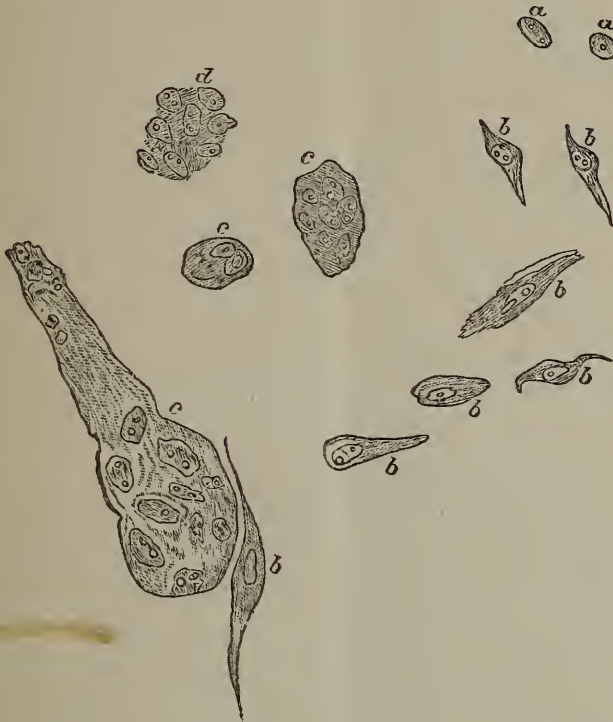
To the same end, we will premise the few points of difference in the grosser characters of the tumors by a description of the microscopic structure of myeloid growths; reiterating, primarily, that epulis is simply "a fibrous tumor of the bone, generally of the surface of the bone, which presents much of the appearance of the gum because it grows into the gum,"* just as all growths are apt to resemble the tissues in which they form, and exhibits therefore the minute structure of all fibrous tumors.

Myeloid tumors according to Paget, *riesen-zellen-sarcoma*, *sarcoma-giganto-cellulare* according to Virchow, exhibit in their minute composition an intercellular substance and a cellular element. The former is made up of faint granules of albuminous and fatty composition to which are added bloodvessels, and occasionally, a limited quantity of fibrous matter. It is therefore, not peculiar.

Imbedded in this, however, is a cellular element, a part of which is eminently peculiar and distinctive. It usually includes modified forms of three types of cells, all of which are seen in the accompanying drawing, made by myself from a specimen recently examined for a surgeon of this city who removed it from the upper jaw of a child, under the impression that it was an epulis. The *first* type of cell may be designated as the nucleated connective tissue or spindle cell; of this there are various degrees of elongation from that of a simple oval and lanceolate form to that of the fusiform cell with long and delicately tapering extremities. They usually contain granular contents and a single round or slightly elongated nucleus which may or may not contain a nucleolus. The *second* type are small round and oval cells, corresponding in size and characters with the nuclei of the connective tissue cells, and with those of the large cells about to be described. The size of the round forms approaches that of a white blood-corpuscle, that is about the $\frac{1}{2500}$ of an inch. The *third* type is one eminently peculiar and appropriately gives the name *giant-celled-sarcoma* to this particular form of sarcoma in Virchow's classification. The cells are described by Paget as "large, round, oval or flask-shaped (c), or irregular cells and cell-like masses, or thin discs of clear or dimly granular substance, measuring from the $\frac{1}{1000}$ to $\frac{1}{300}$ of an inch in diameter, and containing from two to ten or more clear, oval, and

* See Cæsar Hawkins's excellent clinical lecture on *epulis*, in the old London *Medical Gazette*, vol. xxxvii, 1846, p. 1022.

nucleolated nuclei (d).”^{*} A glance at the drawing will confirm the accuracy of this description. In the report of a single case[†] Paget also describes as present “bodies like the many nucleated cells, but having on their walls, as it were wrapped over them, one or more caudate nucleated cells. They seemed to be formed like the peculiar corpuscles in epithelial cancers, in which one finds cells or clusters of nuclei invested with layers of epithelial scales concentrically wrapped around them.” I have, as yet, never met these forms.



Elements of a Myeloid Tumor removed from the upper jaw of a child by Dr. H. Lenox Hodge. In addition to the above there was a scanty fibrous element.

The grosser characters of myeloid tumors, as stated, are much less distinctive. The following, from Mr. Paget's lectures, include nearly all of them: “Myeloid tumors usually occur singly: they are most frequent in youth, and very rare after middle age; they generally grow slowly and without pain, and generally commence without any known cause, such as injury or hereditary disposition. They rarely, except in portions, become osseous; they have no proneness to ulcerate or protrude; they seem to bear even considerable injury without becoming exuberant; they may (but I suppose they very rarely) shrink, or cease to grow; they are not apt to recur after complete removal, although their recurrence has been in more than one case observed; nor have they, in general, any features of malignant disease, although myeloid structures have occasionally been found mingled with the ordinary structures of medullary cancer.” To these

^{*} Paget. Lectures on Surgical Pathology, edited by Wm. Turner, London, 1870, p. 549.

[†] Ibid, p. 554.

may be added that when seated upon bone they are irregular, often deeply lobed; although often firm they are variously consistent, some being gelatinous in their softness; they are not tough nor elastic as fibrous tumors, but brittle and easily crushed; moderately vascular, "when resting on hollows in bone and covered with periosteum, they commonly pulsate," though this pulsation, as stated by Mr. Paget, "is due, not to their own vascularity but to the arteries beneath them in the hollow of the bone."

Many of these characters apply equally well to epulis or fibrous tumor of the gums. I will attempt, however, to contrast them where it is possible. I am not aware that epulis tends to occur other than singly; it is, however, a growth of all ages, though there are those who have claimed that it also belongs to youth. Prof. S. D. Gross, on the other hand, in a recent clinical lecture* at the Jefferson Medical College, Philadelphia, said that he had never before met with a growth of this kind at so early an age as seven years. It is also usually a tumor of slow growth, Mr. Hawkins relating a case which was eighteen years in attaining the size of a walnut. Differing in this respect from myeloid, it is often painful, patients afflicted with it suffering much from toothache, and it was formerly thought that toothache was an exciting cause of epulis, and possibly it may be true that the irritation of decayed teeth occasionally stimulates its production, but it is more often the case that the presence of the tumor by its encroachment excites the pain. Again, epulis is often partially osseous, frequently containing spiculæ of bone in its centre detached from the surface of the bone. It recurs under the same circumstances with myeloid, that is when all parts have not been completely extirpated, though perhaps less frequently than the former. It is generally lobulated as myeloid tumor in the same situation, but its structure is firmer, it is tougher and more elastic, owing to its fibrous structure.

On section of myeloid tumors, however, we find more decided characteristics, and from these we may be able to recognise them by the naked eye. The cut surfaces are "smooth, uniform, compact, shining, succulent with a yellowish, not a creamy fluid;" presenting "blotches of dark or livid crimson, or of a brownish or a brighter blood-color, or of a pale pink, or of all these tints mingled on the grayish-white or greenish basis-color." Though these are not invariable, and "the tumor may be all pale, or have only a few points of ruddy blotches, or the cut surface may be nearly all suffused, or even the whole substance may have a dull Modena or crimson tinge, like the ruddy color of a heart, or that of the parenchyma of a spleen."†

Epulis in section, on the other hand, is uniform, firm, white and shining,

* Philadelphia Medical Times, Oct. 16th, 1871, p. 28.

† Paget. Ibid. 547.

presenting often in its interior the spiculæ to which allusion has been already made.

From the above facts and comparisons, it is plain that it is by no means easy to decide before operation whether a tumor is epulis or myeloid, and though appearances on section are more characteristic they do not become available for diagnosis. The minute structure of the two growths, however, is widely different, and if it be possible to snip off a fragment before operation there should be no difficulty in determining by the microscope its nature. Finally, as a matter of prognosis it is not of paramount importance that the exact nature of the tumor be known before operation, supposing it is one of these two forms under discussion, as neither is apt to return if *thoroughly* removed. Recurrence of each occasionally takes place, and it is somewhat more frequent in the case of myeloid: the periosteum should in all instances be scraped after operation. In the lecture already alluded to, Prof. Gross recommended as the only certain means of relief "excision of the piece of bone to which it is attached."

A CORRECT METHOD FOR ARTICULATING ARTIFICIAL TEETH IN THE MOUTH.

BY A. B. ABELL, JR., D. D. S., OF PHILADELPHIA.

Having occasionally had cases in which I found it necessary to articulate teeth in the mouth, and having consumed much valuable time in guessing what point needed grinding, I was induced to devise some way by which I could tell promptly what point or points prevented the teeth from coming properly together. Having found the following method to work satisfactorily to myself, I give it to the readers of the TIMES.

Warm a piece of wax, and place it on the cutting edges and grinding surfaces of all the artificial teeth. Then place the case in the mouth, and instruct your patient to close the jaw, until the teeth of the upper and lower jaws antagonize, and press the wax against the face of the teeth while they are in this position. Remove the case from the mouth, and should the wax have become misplaced, carefully replace it in position on the teeth. Now secure an articulating model, using an articulator having the movement of the natural jaw. The object in using the wax, it will be seen, is to get an impression of the antagonizing teeth, also the position of the teeth in the mouth when brought together. After the plaster has set, part the case and remove the wax. Then color with vermilion, or other coloring material, the cutting edges and grinding surfaces of the teeth that antagonize with those teeth from which you wish to grind. Bring the articulator together; and the marks made by the coloring material will show you at once exactly what point requires grinding off, and having the teeth in position as they are in the mouth, you will be enabled to see when you have brought them together sufficiently.

ODDS AND ENDS.

NO. III.

BY E. WILDMAN. M. D., D. D. S.

PHENOL SODIQUE.

This preparation of carbolic acid is deservedly quite popular with the medical and dental professions. Its composition, so far as I have ascertained, has not been made public. The following formula is the result of numerous experiments, and will give an article that will compare favorably with the best French phenol sodique :

Take of Carbolic Acid in Crystals, 188 grs.

Caustic Soda, 31 grs.

Pure Water, 4 fluid oz.—*Mix.*

The carbolic acid should be free from offensive odor, such as is prepared for medicinal purposes. When first mixed it is nearly colorless, but in time assumes a wine color; does not deposit any tarry residue, as is too often found in the commercial article. Carbolic acid has a feeble action as an acid, combining definitely with a very small portion of alkali. When the quantity of soda used was just sufficient to neutralize the carbolic acid, the compound did not appear to be as efficient as the one resulting from the above formula.

DEXTRINE PASTE.

In hot water dissolve a sufficient quantity of dextrine to bring it to the consistency of honey. This forms a strong adhesive paste, will keep a long time unchanged if the water is not allowed to evaporate. Sheets of paper may be prepared for extempore labels by coating one side with the paste and allowing it to dry; when to be used, by slightly wetting the gummed side it will adhere to glass. This paste is very useful in the office or laboratory.

REFINING SILVER AND GOLD.

Pure silver may be obtained by the dry method, by cupellation, and by the humid method. Pure gold may also be obtained by either the dry method, which consists in roasting or melting the metal, and acting upon it by oxygen, chlorine or sulphur, converting the base metals into oxides, chlorides or sulphides. The substances generally used for this purpose are, nitrate of potash to eliminate oxygen, corrosive sublimate or sal ammoniac for chlorine, and sulphide of antimony or sulphur for sulphur, or by the humid method. In this article the humid method will be given.

To Refine Silver by the Humid Method.—The impure silver should

either be granulated by melting and pouring into cold water, or cast into an ingot and rolled into thin plates, then cut into shreds, so as to present a large surface to the action of the acid. Place the metal so prepared in a glass flask or matrass, and add dilute nitric acid. The solution of the metal is hastened by the application of heat, which should be conveyed through the medium of a sand-bath. When heat is applied the action of the acid is energetic, accompanied by a copious evolution of nitrous acid fumes, which are alike prejudicial to the health of the operator and to all metallic instruments in the laboratory, therefore this emanation should be conveyed into the chimney. When the first portion of the dilute acid has ceased to act, add more, and continue to do so as each portion is saturated, until all of the soluble metal is dissolved; then pour the contents of the flask into an evaporating dish, and evaporate until the mass crystallizes, in order to expel all free acid. Dissolve this crystalline mass in pure water and dilute largely, pour into a glass jar; if turbid, filter, or, if more convenient, allow the sediment to subside, and decant off the clear liquid into a glass or other vessel that will not be acted upon by nitrate of silver. This liquid contains all of the silver, and also the impurities soluble in nitric acid. If tin is present as one of the impurities, it will remain in the sediment in the state of an insoluble hydrated peroxide. If iron, copper or zinc is incorporated with the silver, they will be in the clear solution as nitrates.

The next step is to obtain the silver from the solution. It may be thrown down in a metallic state, or as a chloride of silver.

In the Metallic State.—To separate it directly in the metallic state, copper sheets or strips are placed in the solution, upon which the silver is precipitated in minute crystals. To ascertain if all the silver is taken out of the solution, take a little of it out and add a drop of hydrochloric acid, or any soluble chloride; if this produces a white cloud, the copper must remain in longer, as all of the silver is not precipitated; but if the solution remains clear, the silver has been removed. The copper is then taken out, the clear blue liquid decanted or drawn off with a syphon, the silver crystals washed in several waters, then treated with strong aqua ammonia, or pure hydrochloric acid, to remove any trace of oxide of copper that may be adhering to the silver; the precipitate again washed thoroughly and dried, which will be pure silver in a grayish-white crystalline powder.

As Chloride of Silver.—This is done by adding to the before mentioned clear solution hydrochloric acid, or any soluble chloride; common table salt, chloride of sodium in solution, is generally used. This is added (constantly stirring the liquid,) until it ceases to cause any precipitate. Then agitate the liquid and allow the precipitate, which contains all the silver in a state of a chloride, to subside, after which decant off the liquid,

wash the precipitate repeatedly until the water comes off pure. To test the presence of iron or copper in the wash-water, use a solution of ferrocyanide of potassium; if iron be present, it will be indicated by a blue tint; if there is copper remaining, the tint will be brownish. If this test produces no change we may infer the precipitate is sufficiently washed.

The chloride of silver may be reduced by either hydrogen or carbonate of potash.

When *hydrogen* is used to free the silver from the chlorine, the washed precipitate above mentioned must not be dried; it is to be slightly acidulated, and pure iron or zinc is introduced; zinc in sheet or granulated is preferable. The action of the acid upon the zinc eliminates hydrogen, which combines with chlorine, forming hydrochloric acid; this again acts on the zinc, liberating more hydrogen, which again, by its combination with the chlorine, forms hydrochloric acid, at the same time setting the silver free. This process continues until all of the chloride of silver is decomposed, and we have a residue of pure silver.

To test if all of the chloride of silver has been decomposed, take out a little of the residue and digest it in aqua ammonia; if there is any chloride of silver present it will be dissolved in the aqua ammonia, and will become visible as a precipitate by saturating the aqua ammonia with acid.

When all of the chloride of silver has been decomposed, wash the residue in water acidulated with *pure* hydrochloric acid, to remove all particles of zinc; then wash repeatedly with pure water, to get rid of the zinc salts. Then dry; the product is pure silver of a dark grayish color, presenting little or no metallic appearance.

When *Carb. Potassæ (Sal Tartar)*, is used to reduce the chloride, the washed precipitated chloride of silver must be thoroughly dried, pulverized and weighed. Place twice this weight of pure carb. potassæ in a crucible, and heat it until the carb. potassæ is fused. The crucible should be of such size that the fused mass will not more than half fill it; now add a little of the chloride of silver, as this will cause a violent effervescence; when this ceases, add a little more, and so on continue to throw in portions of the chloride until it is all added. When carb. potassæ and chloride of silver are in contact, at a temperature sufficiently high to fuse the carb. potassæ, a double decomposition takes place; the chlorine leaves the silver, setting it free, and decomposes the carb. of potassæ, forming chloride of potassium; this effervescence is caused by the disengagement of the carbonic acid. This is so energetic, if a large portion of the chloride is added at a time it would endanger the ejection of the contents of the crucible.

When all of the chloride is decomposed, (if heat has only been sufficiently

high to keep the carb. potassæ in a state of fusion, which is a better plan,) the silver is interspersed through the fused mass. The heat should now be raised sufficiently high to run the silver down into a button at the bottom of the crucible. The whole melted mass may be poured into a vessel of cold water to separate the chloride of potassium from the silver: but the better plan is to remove the crucible from the fire, and allow it to stand until a violent ebullition of the superincumbent fluid, chloride of potassium, takes place; as soon as this ceases pour off the fluid, and the silver will be found in a button, roughened, having what is termed a vegetated appearance.

This is caused by the property which *pure* silver possesses, when in a state of fusion, of absorbing a large quantity of oxygen, (twenty to twenty-two times its volume,) which is again given out when it solidifies; this giving off of the oxygen is the cause of the ebullition just referred to, and shows us the silver is solidifying, and also that the silver is pure; for if even one or two per cent. of copper be present, this absorption of oxygen will not take place, and consequently the absence of this ebullition would be an evidence that the silver was not pure.

This latter process of reducing the chloride of silver is somewhat tedious, especially when we have a large quantity; but to obtain silver absolutely pure, when strictly followed as above detailed, it is considered the most reliable method. The process given to reduce the nitrate of silver by copper will, by attending to the details as given, give silver sufficiently pure for all practical purposes; it is the one I use in refining a large quantity.

To Refine Gold by the Humid Process.—I shall point out two methods of proceeding: 1st. By alloying the gold with about three times its weight of silver, granulating by pouring it into a vessel of water, or by casting into an ingot and then laminating it. This alloy is placed in a flask or matrass, and acted upon by pure nitric acid; the nitric acid dissolves out all of the silver, and all other metallic impurities soluble in this acid, and leaves the gold in a powder; this liquid is decanted off and preserved, as also the washings of the gold and the silver abstracted from it in the manner pointed out in reducing silver from its solution. One objection that may be urged against this process is, if tin should be one of the impurities contaminating the gold, it will not be dissolved by the nitric acid, but be converted into an hydrated peroxide, and left remaining with the pulverent gold as a residue.

Where the impurities are not known or general, I prefer the following process: Granulate the gold, place it in a flask, add aqua regia, composed of nitric acid, one part; hydrochloric acid, three parts. The formula generally given for making aqua regia is in the proportions of one to two,

but three parts of hydrochloric acid is preferable, as it is the source from which the solvent chlorine is obtained, and if there be any excess of acid at the conclusion of the operation it is more easily expelled than the nitric acid.

Gentle and uniform heat should be applied, through the medium of a sand-bath, to facilitate the action of the acid upon the metal; should the acid cease to act before all the metal is dissolved, add more, and continue its action until all of the gold is dissolved. The metals are now converted into chlorides. Now pour the contents of the flask into an evaporating dish, and evaporate by the aid of heat, applied through the medium of a sand-bath, until the acid fumes cease to be given off, and the mass begins to crystallize. Care must be observed in the latter stage of the process of expelling the acid not to raise the heat too high, as at a little over 400° F., the tetrachloride would be decomposed into an insoluble protochloride and lost. Precaution must also be observed during the process of solution and evaporation to carry off the fumes of the acid, so that they shall not be inhaled or spread through the laboratory.

Next dissolve the crystalline mass in pure water and dilute largely; if turbid, which is generally the case, it may be filtered, but I prefer to pour it into a precipitating glass, (an ordinary glass jar may be used,) and allow it to stand until all the solid matter subsides, then either by a syphon draw off the clear liquid into a glass vessel, or decant. The sediment should be washed, and when the wash water is clear, mixed with the clear solution previously decanted off. We now have in this liquid all of the gold and metallic impurities that will form soluble chlorides. Should there have been silver incorporated with the gold, its presence will become evident by remaining in the sediment in the form of a white, insoluble chloride of silver, from which the silver may be obtained by the method pointed out to reduce chloride of silver.

The next step is to obtain the gold from this clear solution. First acidulate it by an addition of a small quantity of *pure* hydrochloric acid. Then make an aqueous solution of protosulphate of iron, (copperas,) which, if not clear, must be filtered or allowed to stand until all the sediment subsides; the clear solution alone must be used, by adding of it a little at a time to the gold solution, constantly stirring, until it ceases to cause any precipitate. The jar is then allowed to stand until all of the precipitate subsides to the bottom; the clear liquid is to be decanted off. This precipitate is the gold, and should be washed with dilute *pure* hydrochloric acid, in order to remove any particles of iron that may possibly be present. It should then be washed in water several times, to remove all salts, then dried. This residue is pure gold in a brown or brownish yellow powder, destitute of metallic lustre.

The following table is given, as it may be of interest to the student. The substances that are given as precipitants are not the only ones which will precipitate the metals, but those which are preferable for refining purposes.

Metal.	Sp. Gr.			Fuses at $^{\circ}$ F.	Best Solvent.	Precipitated from solution by	Color and solubility of precipitate.	Remarks.
	Nat.	Cast	Ham'd					
Gold.	14.85 to 19.25	19.4	19.65	2016 $^{\circ}$	Mixture of Nitric Acid 1; Hyd. Chlo. Acid. 3 }	Solution of Proto-Sulphate of iron. (Copperas.)	Brown.	Precipitate, pure gold.
Silver.	10.	10.47	10.51	1873 $^{\circ}$	Nitric Acid, diluted.	By Copper. By Hyd. Cl. Acid, or any soluble Chloride, as Chloride of Silver.	Gray or metallic lustre. White, insoluble in water. Soluble in aqua-ammonia and concentrated hydrochloric acid.	Pure Silver. The Cl. Ag. is reduced by fusing with twice its weight of Carb. Potassa, or by acidulating it, and iron or zinc being introduced
Platina.	15. to 18.94		21.53	4591 $^{\circ}$	Nitric Acid, 1; Hyd. Cl. " 3. }	Solution of Hydrochlorate of Ammonia, (sal Ammoniac.) as Platinichloride of Hydrochlorate of Ammonia	Yellow. Slightly soluble in cold; more soluble in hot water	This precipitate is reduced to metallic platina by red heat.
Copper.		8.83	8.95	1996 $^{\circ}$	Nitric or Sulphuric Acid.			
Zinc.		6.86	7.21	773 $^{\circ}$	Hydrochloric and Sulphuric Acids			
Lead.		11.44	11.44	612 $^{\circ}$	Nitric Acid			
Tin.		7.28	7.29	442 $^{\circ}$	Hydrochloric Acid.			

To find the carat of a piece of gold and the amount of base metal combined with it, and to abstract the silver.—The method of manipulating has been pointed out in the preceding remarks upon refining silver and gold by the humid way.

Weigh the mass of gold desired to test, granulate and dissolve it in aqua regia. Save the white precipitate, if any be present, as this will be the silver in the state of a chloride; wash it carefully, dry and weigh; note the weight, (mark *a*.) Precipitate the gold as directed, wash, dry and weigh, (mark *b*.)

For example:

The mass of impure gold weighed	240 grs.
(<i>a</i> .) Chloride of silver obtained weighed	48 grs.
(<i>b</i> .) Pure gold obtained weighed	170 grs.

From this data we can find the carat of the mass as per rule, viz: multiply the weight of the pure gold by its carat and divide by the weight of the mass.

$$\text{Hence, } \frac{170 \times 24}{240} = \frac{4080}{240} = 17 \text{ the carat of the mass.}$$

Or we may find its fineness in thousandths by a statement thus made:

$$24 : 17 :: 1000 : 708.33 + \text{the fineness in } \frac{1}{1000} \text{ths.}$$

To ascertain the amount of silver contained in the mass reduce the chloride (*a*) to pure silver and weigh; or a shorter method by calculation may be resorted to when it is not desirable to reduce the chloride at the present time.

The combining proportion of silver is 108.3, of chlorine 35.47. Chloride of silver consists of one equivalent of chlorine and one of silver; hence chloride of silver will be represented by $35.47 + 108.3 = 143.77$; and in every 143.77 grs. of chloride of silver there will be 108.3 grs. of metallic silver.

$$\text{Then } 143.77 : 108.3 :: \text{Cl.Ag} : \text{Ag.}$$

By substituting the known quantity of chloride of silver (*a*) as per example, we have:

$$143.77 : 108.3 :: 48 : 36.15 \text{ grs., the pure silver in the mass.}$$

Now the mass (as per example) weighed	240	grs.
Contained pure gold,	170	grs.
Contained pure silver,	36.15	grs.
	—————	206.15 grs.

Showing there was of base metal to the amount of 33.85 grs. contained in the mass of gold.

Original Lectures.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

SURGICAL CLINIC OF PROFESSOR MEARS.

THE MAN WITH THE IRON JAW.

GENTLEMEN:—Mons. D'Atalie, or, as he is commonly known "The Man with the Iron Jaw," has kindly presented himself at our clinic this morning, in order that you may have the opportunity of making a careful examination of his maxillary apparatus. Some of you may have witnessed his feats of strength—all of you have no doubt heard of them—and have naturally felt a desire to ascertain wherein lies his power, and to examine the degree of development of the parts concerned. In questioning him in regard to the history of this manifestation of power residing in the jaws, he stated that it had been developed during the past three years. From early life he has been engaged in a gymnasium, and has had the opportunity of developing, in a high degree, his muscular system. His first effort to raise weights, grasped by his teeth, was made three years ago, when he made an attempt to lift a heavy table. This effort was successful, and he increased the weight until, as he states, he is able to raise seven hundred pounds. Some time since, in attempting to lift a very heavy weight, he dislocated the incisor teeth of the upper jaw; they were immediately replaced, and are now, apparently, as firm in their positions as any of the teeth. Since this accident, however, he exercises more care in grasping weights, lest he should sustain permanent injury.

On examining the oral cavity, you will be struck with the condition of the teeth. You would expect to find a set of well-developed, strong, healthy teeth; on the contrary, you will observe that they appear atrophied; they are smaller than those found in men of his size and form of development; the crowns are worn away, a number of them are carious, and they differ altogether from your preconceived idea of their character. Passing to an examination of the inferior maxilla, you will observe that the bone is small, the curve of the horizontal portion or body is wide, and the angles are rather prominent. The angle at which the rami are attached to the body appears to be somewhat less than a right angle. The external oblique line is very strongly marked, and can be distinctly traced to the base of the mental process. The rami are not very broad, and the edges are not very thick. From this examination you will conclude that the bone does not possess any extraordinary development; in fact, it is not as strongly developed as you would think necessary to enable him to use it as he does. The superior maxillæ appear to be normal in their development. The temporal and masseter muscles are not developed beyond the normal size; when they are called into action they are very firm and

hard, otherwise there is nothing in their condition worthy of special note. After this careful examination, you will be impressed with the fact that his maxillary apparatus does not present any extraordinary development, either in the dental organs, the bone or the muscles, as far as we are able to examine them. On the contrary, there seems to be an absence of any very full development of the various parts which enter into its formation. Notwithstanding, however, the condition of the parts, he has given repeated evidence of being able to sustain very heavy weights which are grasped by the teeth. Let us endeavor to explain how he accomplishes it.

Observe his movements as he lifts this chair. You will see that he places himself firmly on the floor, separates his feet, putting one in advance of the other, and calling into action the muscles of the lower extremities, as well as those which connect the trunk with the lower extremities. He grasps the back of the chair so as to bring it well between the molar teeth; he lifts it by extending his body and head, thus throwing his chest forward. Two forces are employed in this act: 1, That which enables him to hold the chair; 2, That which enables him to lift it. The first is derived from the action of the elevator muscles of the lower jaw; the second from the posterior muscles of the neck and trunk.

When you examine the maxillary apparatus, you find that it consists of the two superior and the inferior maxillæ; the two superior being fixed and immovable, forming, as it were, one bone, while the inferior is very movable, and in the various movements incident to articulation and mastication, plays against the superior with freedom and great force; it is securely fastened in its articulation with the temporal bone by ligaments. There are attached to the lower border of the body of the bone certain muscles, which act as depressors, and which, when called into action, open the mouth. The elevator muscles are larger and stronger than the depressors, and consist of the temporal, masseter and internal pterygoid; the former is inserted into the coronoid process, and the two latter are inserted into the angle of the jaw, the masseter externally, and the internal pterygoid internally. The direction of the fibres of these muscles, and their points of insertion, explain their actions in raising the lower jaw against the upper. At the points where the lower is brought with greatest force against the upper jaw, you will observe that the upper jaw is braced and strengthened by two strong columns, which pass down from the external angular processes of the frontal bone, through the malar bones, terminating in the malar processes of the superior maxillary bone above the molar teeth. Between the molar teeth the greatest force is exerted, and all of the elevator muscles of the jaw are brought into action when they are employed. When, on the other hand, the anterior teeth are alone employed, the temporal muscle is not called into action. Hyrtle, the

distinguished German anatomist, estimates the force exerted by the elevator muscles of the lower jaw, in crushing a nut, to be equal to four hundred pounds. This will give you some idea of the immense power which these muscles are enabled to exert, and will explain the way in which the acts of strength are accomplished by one who is trained. In order to accomplish them it is necessary that the other muscles of the body should be well developed and in a trained condition. In lifting heavy weights, Mons. D'Atalie holds them by placing the part seized between both the anterior and posterior teeth, so as to employ all the elevators of the jaw. Having grasped them firmly, he is enabled to lift them by calling into action the muscles of the neck and body, which, by long training in the gymnasium, he has placed in a state of high development. His power, therefore, does not reside alone in the muscles of the jaw—those of the body play an equally important part in all of his feats of strength.

NECROSIS OF THE INFERIOR MAXILLA—REMOVAL OF THE ANGLE AND A PORTION OF THE RAMUS AND BODY OF THE JAW.

The patient before you gives the following history of her case:—

“She is thirty six years old, married, a native of this country. In January, 1871, she felt pain in the right side of her face, which was shortly followed by swelling; the pain and swelling were both confined to the lower portion of the right side of the face. She consulted a physician, who treated her for neuralgia. In March, she detected a slight discharge of pus from about the region of the second and third right molar teeth of the lower jaw, which were carious. One month later the teeth were extracted, and she was informed by the dentist that there was disease of the jaw. The suppuration still continued, and shortly afterward a small piece of bone was discharged into the mouth. Subsequently, two abscesses formed in the neck below the border of the jaw; one was opened by a physician, and the other broke; these openings give vent to a large quantity of matter—very offensive in odor. In July, a physician made an unsuccessful attempt to remove the sequestrum by external incision. She has been unable from the first to open her mouth very wide, not more than a quarter of an inch. Since the suppuration commenced, she has been in bad health, and has lost flesh. Prior to the trouble with her jaw, she has enjoyed pretty good health. Ten years ago she states that she had a *scrofulous* eruption, which made deep sores and left scars on various parts of her body. These sores were especially bad on the shins.”

The history of this case, gentlemen, furnishes important testimony in reference to the nature of the disease; the appearances presented confirm, in every respect, the information given by the history. On the neck, just below the border of the jaw, you will observe two ulcers, irregular in outline, and surrounded by unhealthy granulations, arranged in the form of papillæ. On close examination, you will find openings at the bottom of

these ulcers into which a probe may be passed, and which will be found to lead into canals or sinuses; these sinuses vary in length and direction; the anterior is much longer than the posterior sinus; at the ends of these canals the probe comes in contact with a hard substance, which gives the impression of having a rough surface; it does not appear to be very firmly fixed in its position. In the line of the body of the jaw, at a point a little in advance of the position of the mental foramen, there is a small swelling, which is red and quite sensitive to pressure. There is some swelling of the side of the face. In making an examination of the oral cavity, some difficulty is experienced in opening the jaws to an extent which will permit the introduction of the finger; when passed inside and carried along the internal surface of the body and angle of the lower jaw, a rough, movable mass of bone can be felt; its anterior border is quite irregular and dentated, and is firmly imbedded in the tissues of the cheek.

The history of the case clearly points to an attack of periostitis as the beginning of the disease. This inflammation of the periosteum was developed in connection with a carious condition of the second and third molar teeth, and may be regarded as due to one of two causes, or possibly to the association of both—the impression made by cold and a syphilitic taint of the system. The “scrofulous sores” which the patient states appeared upon her body some ten years since, and from which she suffered a number of years, were clearly syphilitic in character. The character and location of the cicatrices, as well as the condition of the subcutaneous osseous surfaces, bear testimony to this fact. The crests of the tibiae, the clavicles, and the vertical plate of the frontal bone are thickened and roughened. A subacute inflammation of the periosteum has been developed in connection with all of these bones, and as a result of this morbid process, there have occurred depositions of ossific matter, producing a condition of hyperostosis. In systems which have become tainted with the syphilitic poison, it has been observed that the maxillary bones are rendered peculiarly susceptible to the necrotic action; so marked is this susceptibility, that patients are cautioned in reference to the extraction of the teeth, which operation is very liable to be followed by periostitis, leading to necrosis. In this case, the teeth were carious, and the patient contracting cold, it found here a point of least resistance, and located itself in the bone surrounding the teeth; the inflammation passed on to the stage of suppuration, and the pus, after accumulating, worked its way out into the mouth, and also dissected a way through the tissues of the neck, forming abscesses. When these were opened, there were established channels through which it could pass out as it was formed; this escape of the pus was a favorable condition, as it was constantly dissecting off the periosteum from the bone, and therefore increasing the size of the seques-

trum. When the pus finds a vent, the efforts of nature are greatly assisted, and she is able to oppose a barrier to the further progress of the necrotic action. She then sets to work to throw off the dead bone, separating it from the living bone, and breaking it down so that it can be discharged by the small openings which the pus has made in its efforts to reach the surface. If the surgeon comes with his instruments to her assistance, the dead bone can be removed in mass, and thus the process of repair is hastened and the destruction of the soft tissues very much lessened.

Some of the class will remember what has been said to them in reference to the incision which should be made in operations upon the jaws. This should always be made, if possible, within the mouth, by which cicatrices on the exposed surfaces of the face and neck are avoided. If, in operations on the lower jaw, they must be made externally, it must be borne in mind that they can, in great measure, be concealed by being made along the under surface of the border of the jaw. When the tissues resume their normal relations the integument will contract, and the cicatrix will be drawn under the border of the jaw and out of view.

The patient will now be placed under the influence of the anæsthetic agent, (two parts of ether to one of chloroform, liquid measure,) and the sequestrum will be removed by internal incision. [The incision was made, and the bone removed by the bone forceps. The unhealthy granulations surrounding the mouths of the sinuses were cut away and the sinuses scraped; the cavity of the mouth was thoroughly washed out by a large syringe.] You observe that it did not require a very large incision to remove this piece of dead bone. Nature had already performed most of the operation necessary for its removal. It was being thrown off with such force that this anterior roughened border was deeply imbedded in the cheek, and would have soon made an opening for itself.

Already the process of repair has commenced in the living bone, as can be determined by passing the finger into the cavity from which this piece has been taken; the surface of the bone is covered by granulations, and the indications are that, as occurs in this bone, the destruction of bone tissue will be soon repaired.

On examining the sequestrum you observe it embraces the entire angle of the jaw, with a portion of the body and ramus; from the point of the angle to the anterior border of the fragment along the lower border of the body the measurement is one and a half inches; from the point of the angle along the posterior border of the ramus to the upper border of the fragment the measurement is one inch. The upper border of the fragment is on a line with the inferior dental foramen, and the fragment contains a portion of the inferior dental canal, measuring over one inch

in extent. The alveolar border contains the cavities of the second and third molar teeth.

The removal of a portion of the inferior dental canal implies of necessity a division of the blood-vessels and nerves which are contained in this canal, and an interruption therefore of the vascular and nervous distribution to the remaining teeth, and to the tissues occupying the chin and lower lip on the right side. In confirmation of this, you will find that paralysis of sensation exists in all these parts. The teeth are numb, as she expresses it, and the surface can be pricked by a pin without giving any sense of pain. The separation of the sequestrum has been so gradual that hemorrhage has not occurred from division of the blood-vessels, whose coats have been divided by a slow ulcerative process.

The cavity of the mouth will be frequently syringed by a weak solution of chlorinated soda, and the patient will be kept under observation until the parts are healed. We will examine the condition of the jaw, from time to time, and observe the reparative process as it continues.

USES OF COCA.

Dr. J. H. Scrivener, of Lima, states that the two most valuable productions of Bolivia are the Peruvian bark and coca. The leaves of the latter are the product of a shrub, and, when mature, are gathered and sun-dried. Coca has been in use from time immemorial. Its properties are variable, according to the quantity employed. It is a stimulant, a tonic, slightly narcotic and very nourishing. It possesses an agreeable aroma, and a flavor similar to that of tea, and, like that plant, is frequently employed in the form of an infusion in slight disorders of the stomach. Its nourishing powers are attested by the fact that, in the war for the independence of their country, a battalion of infantry under the command of General Valdes marched 108 miles on foot in three days, and without any other food than the coca leaves; and the andadores or couriers, who travel from sixty to seventy miles a day without weariness, and for several successive days, go without any other food than a few coca leaves and a small quantity of powdered Indian corn. The effects of coca on the Indian are very visible; they are strongly marked in his countenance by a greater brilliancy in his eye, more agility in his step, and he is animated and contented. Dr. Scrivener observes that, besides its admirable effects in nourishing the system, it is employed with advantage in a medical point of view, as an excellent tonic in weakness of the stomach and other affections of that organ; and he hopes that the day is not far distant when this plant will become more generally known in medicine. Its leaves might easily be packed in cases lined with tin, like tea, and would then probably preserve most of their qualities.—*The Practitioner*, Nov., 1871, from *Med. Times and Gazette*, Sept. 30, 1871.

CHLORAL IN TOOTHACHE.

Dr. Page, in a letter to the *British Medical Journal*, states that, for some time past he has employed chloral hydrate, not only as an internal sedative in dental neuralgia and caries, but also as a local application to a carious tooth.

A few grains of the solid hydrate placed on a quill point introduced into the dental cavity speedily dissolve, and the pain is either deadened or effectively allayed. A second or third application of the remedy may be necessary.—*The Doctor*, October 1, 1871.

Leading Articles.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The regular session of this institution began on Wednesday, November 1st, with an introductory address, by J. Ewing Mears, M. D., Professor of Anatomy and Clinical Surgery. The lecture room was well filled by the students and friends of the college. The members of the Board of Trustees and invited guests occupied seats on the platform. Among the latter were Prof. Samuel D. Gross, of the Jefferson Medical College, and Dr. Washington L. Atlee, of this city.

Prof. Mears, in beginning his address, extended a cordial welcome, on behalf of his colleagues, to all those who presented themselves to be enrolled as students, and greeted them as friends interested in a common pursuit—the acquisition of scientific knowledge. He stated that he would direct their attention, in the time assigned him, to the different branches which constituted the course of study in this institution, and of the methods they should adopt, in order that they might acquire the maximum of information. He could not refrain from congratulating them, as he surveyed the field of study they were about to enter, upon the fact that they were students of to-day, “not that the *ultima thule* of scientific investigation has been reached, or that all the *arcana* of nature have been revealed to the inquiring mind of man, leaving no new worlds to conquer or mysteries to unravel, but because the opportunities for the pursuit of scientific study, which surround you on all sides, are so far superior to those which were within the reach of your predecessors. It behooves you, therefore, to bear this fact in mind, for with increased advantages come increased responsibilities, and of you will be demanded knowledge which their limited facilities did not permit them to acquire. Society has the right to demand that you shall exercise your art in accordance with the existing state of the science, and for this much it holds you to a strict accountability.”

He then considered the motives which should prompt one to assume the duties and responsibilities of a student. He regarded it a subject of paramount importance, and one which should receive the earnest and thoughtful attention of each one proposing to become a student. No one should enter the student's career with-

out a full appreciation of the responsibilities of his profession, as well as the benefits which will accrue from a faithful performance of all the duties which pertain to it. He should fully realize the fact that he is laying the foundation of a life-long career.

He next examined the branches which constituted the collegiate course. These are elemental and practical in character, the first embracing the fixed and definite branches of knowledge—*chemistry, anatomy, physiology* and *pathology*, and the second consisting of those devoted to the consideration of the application of this knowledge to the treatment of diseased conditions of the dental organs, and in the preparation of such materials and mechanical appliances as are employed in their reparation or in their replacement. The one constitutes a science, the other an art.

He dwelt upon the great importance of acquiring a thorough knowledge of the science—which includes the fundamental branches upon which is built the superstructure of their profession. He compared the position of the profession to-day with what it was less than a half century ago, and attributed the great progress made to the fact that, within this period, Dental Colleges have been established throughout the country, in which both the *science* and the *art* are taught. Before the beginning of this golden age in the history of dentistry, the student acquired the *art* in the laboratory and operating room of his preceptor; the *science* was utterly ignored, or at best, claimed but little of his attention.

He directed their attention to the extended opportunities afforded them for the acquisition of practical knowledge in the large clinics maintained by the College. Competent demonstrators were always present to guide them, step by step, through each operation, and explain to them each principle involved. In addition, clinical lectures are delivered each week upon the diseases and injuries of the jaws, and an opportunity is afforded of witnessing the performance of such operations as the conditions may require.

He then reviewed each branch separately, passing over, in a general way, the field of study covered by each, and defined their relations. These departments constituted the course of instruction which they were invited to pursue—its foundation strong and deep-laid, resting upon the broad basis of complete instruction in the principles of the science—upon these fundamental branches would rest whatever knowledge they might possess of the art.

He concluded with the admonition that the task placed before them could only be accomplished by patient industry. Systematic, well-directed effort, would alone enable them to accomplish the objects of the course, with satisfaction to themselves and to their instructors. They should not depend alone upon the information derived from the lectures, but should daily consult their text-books. In this way they would confirm the instruction imparted in the lectures, and derive the fullest benefit from the course.

DONATIONS.

We have received the following donations to the College, some of which are very valuable, and all are of interest, for which we tender the donors our thanks.

From Dr. Frank L. De Gour, of Plymouth, Luzerne County, Pennsylvania, a plate to which is attached one tooth. The lingual surface of the plate is composed of silver, mostly covered with pewter solder and bordered with rubber, the palatal surface hard rubber with the exception of the chamber, which is of silver. The work was executed by a dentist in one of the Eastern States, and displays a great amount of skill and labor expended by the operator in making a worthless article. The patient was unable to wear the plate, on account of the strong galvanic action produced by the dissimilar metals.

From Mr. S. Musselman, licentiate dental surgeon, of Brantford, Ontario, (Canada,) a case of dilaceration caused by a bungler, or, as he styles him, a butcher dentist, in attempting to extract a deciduous tooth. This tooth is a right central incisor, and was extracted when the patient was 12 years old, on account of the irritation it produced. The crown stands at an angle of 20 degrees from the axis of the root. The bond of union between the crown and root is perfect where in contact, while one-fourth of the diameter of the root extends beyond the labial face of the crown. The case is one of much interest.

From Mr. George R. Welding, of this city:

A superior molar with malformed and exostosed roots; also, an inferior molar with three roots, extracted by Dr. H. H. Harrisson, of Cadiz, Ohio.

A superior first bicuspid, with three roots, extracted by Dr. S. H. Whitmer, of Newport, Pennsylvania.

A superior canine tooth, with two roots, extracted by Dr. E. R. Hamilton, of Saginaw City, Michigan.

Three superior molars, with an exceedingly large deposition of tartar. This incrustation extends from the masticating surface externally below the apices of the roots. Extracted by Dr. James Todd, of Cortland, New York.

From Mr. W. B. De Morat, student in Pennsylvania College of Dental Surgery, a partial upper set, made in Rome, in 1866, mounted upon a narrow gold plate, in a style similar to that generally practised in this country thirty years ago. The plate is enveloped with hard rubber.

From Dr. A. B. Abell, Jr., Assistant Demonstrator of Mechanical Dentistry in the Pennsylvania College of Dental Surgery, a partial upper set, with single plain teeth mounted upon a silver plate, made by a self-styled proficient. The character of the work is such, fortunately, we rarely meet with. The plate evidently did fit up to the palatal arch by near an eighth of an inch. The teeth are attached to the plate and filled in around their base in front with some fusible metal!

From Johnson & Lund, of this city, corundum wheels, having a metallic nut in the centre in which is cut a thread. A valuable contrivance, enabling the operator to correctly adjust the wheel to and remove it from the spindle of the lathe with facility.

From Dr. E. C. Thatcher, student in Pennsylvania College of Dental Surgery, a number of very interesting articles used by the savages of the South Sea Islands. In the collection, perhaps nothing more clearly displays the striking contrast between savage and civilized life than the full holiday costume of a South Sea Island belle and that of our fashionable ladies.

CHICAGO DENTISTS AND THE LATE FIRE.

We are glad to take the earliest opportunity which our quarterly mode of issue permits, to call attention to the fact that the dentists of Chicago have, in common with others, suffered such loss as makes eminently proper the efforts which have been made in their especial behalf by their brethren in this city and elsewhere. A considerable amount has already been collected and placed in the hands of Mr. S. S. White, of this city, subject to the order of Dr. George H. Cushing, of Chicago, President of the American Dental Association. We have no doubt that Mr. White will still be willing to receive and forward such donations as may be sent to him.

Proceedings of Societies.

PROCEEDINGS OF THE OHIO STATE DENTAL SOCIETY.

Sixth Annual Meeting, held at Columbus, O., during December 5, 6 and 7, 1871.

MORNING SESSION.

The Society met at 11 o'clock, A. M., on the first day.

In the absence of the President and First Vice-President, the meeting was called to order by the Second Vice-President, Dr. C. R. Taft, of Mansfield, and was opened with prayer by Rev. O. H. Newton, Chaplain of the Ohio penitentiary.

Upon the roll being called by the Secretary, Dr. W. M. Herriott, of Zanesville, about forty members were found to be present.

The minutes of the last annual meeting were then read by the Secretary.

Reports of committees being next in order, Dr. Herriott, Chairman of the Executive Committee, made a verbal report in reference to the arrangements which had been completed for holding the present annual meeting.

The Committee on Membership, (Dr. J. Spellman, Chairman,) and the Committee on Ethics, (Dr. A. A. Blount, Chairman,) not being ready to report, the time for making these reports was, on motion, extended.

The Publishing Committee, through Dr. J. Taft, Chairman, reported that the proceedings and discussions of the last annual meeting had been duly published.

Dr. J. TAFT moved that a committee of three be appointed to consider the advisability of holding a general quiz during each day of the session. He remarked that it occurred to him and to other members of the Society with whom he had consulted, that a half hour or an hour might be profitably spent each day in a general quiz as proposed, believing that it might bring out new and interesting facts and ideas, which perhaps would not be brought out in any other way.

The motion prevailed, and the Chair appointed as said committee Drs J Taft, B. T. Spellman and E. C. Sloan.

On motion of Dr. HERRIOTT, all dentists present in the city during the sessions of the meeting were invited to sit as corresponding members, and participate in the proceedings.

On motion, the meeting adjourned until 2, P. M.

AFTERNOON SESSION.

The meeting was called to order by D. R. Jennings, First Vice-President. The minutes of the forenoon session were read, when the subject of "Dental Medicine" was announced as the first for discussion.

On motion of Dr. G. W. WATT the subject was laid on the table.

The subject of "Filling Teeth" was next introduced.

After some remarks by Drs. Spellman, Watt and Herriott, the report of the committee appointed before the adjournment was made through Dr. J. Taft as follows:

Your committee would report that they have considered the subject of holding

daily quiz meetings during the sessions of the meeting, and recommend a general exercise of this character by holding it twice a day, namely: at the opening of the morning session and at the opening of the evening session, and continue from one-half to three-fourths of an hour; the subject matter being chiefly such as pertains to the practice of dentistry in its various details, and conducted by persons appointed for the purpose. Your committee suggest that the exercises be chiefly oral, but written questions will be admissible.

The committee suggested as conductor of the quiz exercise this evening Dr. G. W. Watt, of Cincinnati, and for the succeeding sessions the following gentlemen, in the order named: Drs. C. R. Butler, of Cleveland; H. A. Smith, of Cincinnati; F. H. Rehwinkel, of Chillicothe, and W. M. Herriott, of Zanesville.

On motion, the report was received, and after some little discussion, was adopted.

The discussion on the subject of filling teeth was resumed and further participated in by Drs. A. A. Blount, of Springfield; L. Buffett, of Cleveland; C. R. Taft, of Mansfield; N. W. Williams, of Xenia; J. Williams, of New Philadelphia; C. M. Kelsey, of Mount Vernon, and J. M. Porter, of Massillon.

Most of those who spoke upon the subject favored the practice of using smooth points in filling instead of the serrated points which have been in general use, claiming that teeth can thus be more easily and perfectly filled than by the practice which has hitherto generally prevailed.

A paper prepared by Dr. C. R. Taft, upon the subject of filling teeth, was then read.

On motion of Dr. A. A. Blount, Dr. P. C. Hunt, of Indianapolis, was elected an honorary member of the Society.

The Committee on Membership recommended Samuel Clippinger, of Toledo, and J. Frank McGinnis, of Bellefontaine, as candidates for membership, they having previously passed the examination required.

The persons named were elected by ballot members of the Society.

Adjourned until 7½, P. M.

EVENING SESSION.

The meeting commenced at 7½, P. M. The minutes of the previous session were read, when Dr. G. W. Watt took charge of the quiz exercises. He proceeded to ask certain questions pertaining to the profession, designating the members that should answer them. The exercises proved quite interesting and instructive.

At the conclusion of this exercise the subject of filling teeth was again taken up, and occupied the remaining portion of the session.

On motion, it was voted that the time from 8 o'clock until 10½ the next morning be occupied in clinics, Drs. J. Taft, of Cincinnati, A. A. Belmont, of Springfield, C. R. Butler, of Cleveland, and Hunt, of Indianapolis, being appointed operators.

SECOND DAY.—MORNING SESSION.

Dr. B. T. Spellman, from the Committee on Membership, reported as candidates for membership, having passed the requisite examination, the following named persons: J. W. Lyder, of Alliance; J. H. Siddell, of Canton; J. M. Segur, of

Akron; S. R. Beckwith, of Kinsman, and E. L. Perry, of Milan, all of whom were unanimously elected.

Dr. J. TAFT offered the following resolution:

Resolved, That two normal class clinical operators or teachers be appointed by this Society annually, whose duty it shall be to answer any calls by the profession in this State, for clinical instruction, and any additional assistance practicable, whenever a sufficient number of the profession, in any given locality, shall unite in extending such invitation, and shall be responsible for the expenses incurred in filling such requisitions, including such a salary for such services as shall hereafter be determined upon.

Dr. TAFT supported the resolution in a few remarks, stating that frequent calls were made and desires expressed for such assistance by the profession in this State and elsewhere. It occurred to him that this State Society might accomplish a good work by taking the initiative steps in this matter. Many things connected with the practice of dentistry, that might in themselves be considered trivial, are of great importance when their influence is taken into the account. Clinics at the meetings of the State Association, where so many are present, are unsatisfactory for different reasons, when, however, as proposed under the resolution, if but few were present, clinics would prove much more instructive and beneficial.

Drs. Butler, Watts, Rehwinkle, J. H. Warner, Perry and C. R. Taft concurred in the views of Dr. J. Taft upon the subject, and favored the passage of the resolution. The resolution was unanimously adopted.

On motion of Dr. REHWINKLE, the matter of salary and the appointment of teachers, in accordance with the resolution, was referred to a committee of three, to be appointed by the chair.

Adjourned till 2, P. M.

AFTERNOON SESSION.

The attendance on this day was largely increased.

The chair announced as the special committee to whom the matter under Dr. Taft's resolution should be referred, Drs. B. T. Spellman, L. Butler and C. R. Taft.

The Secretary presented the certificate of Dr. J. G. Templeton, as delegate from the Pennsylvania State Dental Society.

Dr. G. WATT, of Xenia, moved that Dr. Templeton, as such delegate, be especially invited to participate in the discussions of the meeting, and be constituted an honorary member of this Society. Also, that he be requested to bear the compliments of this Society to the Pennsylvania Dental Society, and that this Society appoint a delegate to the next annual meeting of that Society.

The motion prevailed, and Dr. C. L. Butler, of Cleveland, was appointed as said delegate. Dr. Butler declining the appointment on account of the meeting at the same time with the Northern Ohio Dental Society, of which he is a member, Dr. J. Taft, of Cincinnati, was appointed instead.

Dr. Templeton having appeared in the room, the President informed him that the courtesies of the Society were extended to him, and that he was desired to participate in the discussions, and act as an honorary member of the body. Dr. Templeton thanked the Society for the cordial reception he had received,

and said he had come to bear to them the friendly greetings of the State Dental Society of Pennsylvania, and extended a cordial invitation to all the members who could make it convenient to visit them at their next annual meeting, to be held at Erie, on the first Monday of June next.

The next subject, "Treatment of Dental Irregularities," was taken up, upon which an interesting discussion ensued, participated in by Drs. Berry, of Cincinnati; Watt, of Xenia; Rosson, Herriott, of Zanesville; Warner, of Cincinnati; Butler, of Cleveland; Sedgewick, Buffert and Blount, of Springfield.

At the conclusion of the discussion on this subject, the Secretary read a letter from the President of the Society, Dr. G. W. Keely, of Oxford, expressing his regret in being absent, occasioned by sickness in his family.

The address of the President, which had been written, and forwarded to Dr. H. A. Smith, of Cincinnati, was then, on motion, read by that gentleman.

The President, in his address, after thanking the Society for the honor conferred upon him at their last annual session, in electing him to this position, and expressing his disappointment and regret at being deprived of the pleasure of meeting with them, congratulated the members upon the prominent position which the Ohio Dental Society sustains among the Dental Societies of the land, and concluded with valuable suggestions and much good advice to the members, in order that they might not only retain their present position, but advance to higher ground.

The Committee on Membership announced that Dr. J. G. Cooley had passed a satisfactory examination, and recommended that he be elected a member of the Society. Ballots were prepared and Dr. Cooley was elected to membership.

On motion of Dr. A. A. BLOUNT, a committee of five was appointed to nominate officers for the ensuing year, and a committee of three to nominate candidates to fill the vacancy occasioned by the expiration of the term of office of two of the members of the State Board of Examiners.

The chair appointed as members of the former committee, Drs. M. DeCamp, W. P. Horton, Samuel Clippinger, H. A. Smith and N. W. Williams; and of the latter, Drs. B. F. Rosson, E. J. Way and A. A. Blount.

After some discussion on the "rubber question," as related to dentistry, the matter was, on motion of Dr. W. P. HORTON, of Cleveland, referred for consideration to a committee of three, the chair appointing Drs Horton, Rehwinkel and Berry said committee, whereupon the meeting adjourned until 7½, P. M.

EVENING SESSION.

The meeting convened at 7½, P. M. After reading the minutes of the afternoon session, a general quiz exercise was held, conducted by Dr. Butler, in the absence of Dr. H. A. Smith, who had been appointed as conductor.

Dr. SPELLMAN, chairman of the committee to whom was referred the nomination of persons as clinical teachers or operators, under the resolution of Dr. Taft, made a report recommending Drs Corydon Palmer, of Warren, and W. Taft, of Cincinnati, for this work, and suggested that not less than three persons should be appointed for this duty, naming Dr. C. R. Butler as the third, if this suggestion was approved by the Society.

The report was accepted and adopted.

The subject of "Dental Medicine" was then taken up, upon which a lengthy discussion was had, participated in by Drs. Watt, Spellman, J. Taft and Butler.

Drs. Buffet and Sedgewick were appointed a committee to nominate delegates to the next meeting of the American Dental Association.

THIRD DAY—MORNING SESSION.

The Society reassembled at 10 o'clock, D. R. Jennings in the chair.

The special committee appointed to select delegates to the next meeting of the American Dental Association, reported the following names: J. Williams, A. Berry, S. Clippinger, B. F. Rosson, W. M. Herriott, E. J. Way, E. C. Sloan, M. De Camp, W. H. Sedgewick, F. H. Rehwinkle, A. A. Blount, J. Taft, D. R. Jennings, A. F. Price, J. W. Silly. The report was accepted.

The next subject for discussion being the "Basis for Artificial Teeth," the same was taken up, and discussed by Drs. Herriott, Watt, Warner, Kelsey, Clippinger and Rosson.

The committee to select candidates for officers of the Society, made their report, which was received.

A resolution was adopted, allowing the Secretary a salary of \$30 per year.

A paper was read by Dr. H. A. SMITH, of Cincinnati, on "Mechanical Dentistry, its Decline as an Art." The paper was full of interest, and was considered one of the most interesting papers ever read before the Society. The paper was referred to the Publishing Committee.

Dr. W. A. HORTON, Secretary and Treasurer of the Board of Examiners, made his annual report, which was received and accepted.

Drs. R. G. Warner, of Columbus; H. W. Howe, of Chillicothe, and W. R. Carter, of London, were elected members of the Society.

Drs. J. Taft and F. H. Rehwinkle were reappointed members of the Board of State Examiners.

A resolution was unanimously adopted expressing confidence in the professional ability of Dr. N. W. Williams, of Xenia, and a desire for his future prosperity. The resolution was very complimentary in its tone, and was adopted in a heartily unanimous way that must make it very acceptable to Dr. Williams. Dr. Williams leaves for Italy next May, where he will accept the position of Dentist to the Court of His Majesty, Victor Emanuel.

AFTERNOON SESSION.

After reading the minutes of the morning session, the Association proceeded to ballot for officers for the ensuing year, with the following result:

For President, B. T. Spellman, of Warren; First Vice President, I. Williams, of New Philadelphia; Second Vice-President, E. C. Sloan, of Ironton; Recording Secretary, Dr. C. R. Taft, of Mansfield; Corresponding Secretary, C. R. Butler, of Cleveland; Treasurer, L. Buffett, of Cleveland.

Dr. George Watt was appointed to conduct the President elect to the chair. On taking the chair Dr. Spellman addressed the meeting briefly, returning thanks for the honor conferred upon him.

Dr. A. BERRY, chairman of the committee to whom the rubber question had

been referred, read the report of said committee, which recommended the appointment of a committee of five to take such action in the matter as they should deem necessary.

The report was accepted and adopted, and Drs. Rehwinkle, Smith, Horton, I. Williams and Keely were chosen as this committee.

At this juncture business matters were suddenly interrupted by the approach of Dr. F. H. Rehwinkle toward the President elect, whom he addressed as follows: "Dr. Spellman, I take pleasure, in behalf of the members of the Ohio State Dental Society, of presenting you, as presiding officer of this body, a beautiful badge of your office. It is a very small present in the shape of a basket. It is, however, a monument of patience and perseverance, and was produced, I am happy to inform you, by a member of this Society, Dr. H. W. Howe, of Chillicothe.

"The place in the centre of the ring forming the handle is left open for a motto for this Society, and as we have not yet chosen a motto, I don't know that we could choose a more appropriate one than that suggested by this beautiful piece of workmanship—'Patience and perseverance.' The Society will expect you to wear this as the badge of your office, and at the expiration of your term to hand it over to your successor."

The President, in a few fitting words returned, in the name of the Society, his sincere thanks for the gift of this beautiful little emblem.

This little basket is made of the shell of a pecan. It is of exquisite workmanship, and the great amount of labor and skill which must have been necessary to produce it, is certainly indicative of patience and perseverance, as remarked in the presentation speech.

Upon one side of this diminutive basket, engraved in letters so small as to be just visible to the naked eye, are the words, "Presented to the Ohio State Dental Society, organized at Columbus, June 26 and 27, 1860."

On the reverse side are the names of the former Presidents of the Society, as follows: "Dr. George Watt, Dr. J. Taft, Dr. W. P. Horton, Dr. F. H. Rehwinkle, Dr. G. W. Keely."

The name of Dr. B. T. Spellman, President elect, is to be immediately cut upon it, and there will still be room for the names of three future Presidents of the Society.

There is also upon it the emblem of the profession, (upper and lower maxillary bones, and even the roots of the teeth,) the seal of the State of Ohio, and the name of the maker, H. W. Howe, the latter so small that the aid of the magnifying glass is required in order to read it. And what seems quite wonderful, the work was all done with a penknife.

The remainder of the session was occupied in miscellaneous business, among which was the reading of the Treasurer's report, showing a balance in the treasury, after paying off all dues, of \$241.17.

As will thus be seen the Society is in a prosperous condition, and has, doubtless, a bright future before it. The present has been one of the most interesting annual gatherings it has ever held, and much important business was transacted.

The Society adjourned to meet at Columbus on the first Wednesday in December next, 1872.

Reviews and Book Notices.

Treatment and Prevention of Decay of the Teeth. By Robert Arthur, M. D., D. D. S. 12mo, pp. 256. J. B. Lippincott & Co., Philadelphia, 1871.

The announcement of a work by Dr. Arthur should, of itself, be sufficient to command attention; but when to this is superadded a bold departure from accepted modes of practice, such work should receive careful reading and thoughtful consideration.

If the broad statements, in his preface, are founded on the irrefutable logic of facts, it is certainly time that a remodeling of daily practices should take place. His argument is based on the following propositions, viz:

"1st. That all the teeth of every individual, with rare exceptions, may be preserved.

"2d. That decay of the teeth may be *prevented* from occurring at places where it is most destructive, and requires the most difficult, painful and expensive operations for its arrest.

"3d. That all the attention necessary for the certain preservation of the teeth, provided it is given in time, is of simple character, and quite within the ability of any dentist of ordinary acquirements.

"4th. *That the pain usually attending dental operations may be entirely avoided.*

"5th. That as the operations required are of a simple character, the cost of the preservation of the teeth will be diminished."

Passing over the general consideration of caries, we meet the practical application of his theory in Chap. V, on "Incisor Teeth." He says:

"It is probable that the incisor teeth of more than nine-tenths of the children of the better classes of people in this country are attacked by decay on some parts of the surfaces in contact, unless special care is taken with them, before they have been formed a single year. It progresses with varying degrees of rapidity, depending on causes already indicated; but whether its progress be slow or rapid, it is important that, when it does attack the teeth, its presence should be detected at the very earliest moment.

"As these teeth are liable to decay—not only where they touch each other, but where they are in contact with the temporary teeth—the first step to be taken in carrying out the treatment now proposed, is to cut away the mesial surfaces of the temporary lateral incisors.

"By means of this simple operation, the distal surfaces of the permanent central incisors are rendered free, for the time, from any liability to decay. It is obvious that this treatment can do no possible harm, even if the teeth in question should never, without this precaution, be attacked by decay."

It is evident that this statement is correct and the remedy proposed efficient. In regard to the proximate surfaces of central incisors, he writes:

"It has been explained that decay attacks these surfaces only as a result of the lodgment of particles of food, &c., upon them, although the enamel be entirely free from defect. It is obvious, therefore, that if it were possible to keep the sides in contact as well cleansed as the surfaces toward the lips and tongue, they would remain equally free from decay. * * * In the great majority of cases, then, these teeth will decay at some points upon the proximate surfaces, and their preservation will depend upon the knowledge, skill and care of the dentist to whom the child is intrusted. * * * The surfaces in contact of these teeth should be carefully examined once a month, at least, if they present the usual appearances of a tendency to decay. For this purpose they should be pressed apart, as can easily be done by the employment of thin pieces of ordinary tape. * * * It has been explained that a permanent separation of these teeth will so lessen their tendency to decay, that it is not liable to occur. This was shown in the case illustrated. The separation in this case was made with the file.

"A strong and very natural prejudice exists against the employment of this instrument for dental operations. The prevalence of such feeling is easily accounted for. * * * In former years, when the file was in general use for this purpose among dentists, a very small number knew anything about the business they had undertaken. * * * The file was used by most of them without any proper

knowledge of what it was intended to accomplish, and in the most bungling manner. * * * It may be stated here, that the *file need never be employed for the treatment of superficial decay of the incisor teeth.* The object can always be accomplished by other means.

"Even when decay of the incisors has been allowed to progress so far as to render filling necessary, a much more reliable plan of treatment than that described is to cut them away, so that the decayed surfaces are rendered easily accessible. After this is done the contact is effectually broken up. Slight shoulders may be left near the gum, or the surfaces treated are so beveled that they do not touch except at the extreme outer edges of the enamel. These surfaces can be readily cleansed by the tooth brush. This method of filling these teeth, unless there is considerable decay, does not render necessary any change of form, visible on ordinary inspection. The permanent separation is made with properly shaped cutting instruments. * * *

"The important feature of the treatment proposed is, that decay occurring on the proximate surfaces of any of the incisor teeth *can always be arrested before it becomes necessary to resort to filling for the purpose, and always without the slightest disfiguration* * * * I have stated that the file need never be employed for the permanent separation of the incisor teeth. I have of late abandoned its use almost entirely. The object is accomplished by the employment of properly shaped chisels. * * * In the performance of this operation the teeth are first pressed apart, as already explained. If both surfaces (we have now the central incisors under consideration) are already decayed so far that the decay has passed through, or nearly through, the enamel, they should be cut away with the chisels above described, so as to make the affected surfaces look toward the mouth. After this is done, these surfaces should be polished very carefully. A very excellent agent for this purpose is oxide of tin, or what is known to workers in marble as 'polishing putty.'

"After this is done, those who have charge of the child should be directed, if the tendency to decay is very great, to cleanse the surfaces of the teeth so treated with floss silk, or, if the spaces will admit of it, a piece of tape wet with alcohol and water and charged with some of the same material, or with prepared chalk. The tape or silk, when used, should be drawn rapidly to and fro for a short time through the spaces between the teeth and over the separated surfaces. When it is discovered that the teeth are more than usually frail, the dentist who has the case in charge should himself examine and repolish these surfaces once a month or week, as he may consider advisable, during the first year after he has commenced treating them, or until he is satisfied that the exposed dentine has undergone the change described in Section II. Even after he is satisfied that the change referred to has taken place, he should examine them at such times as he may consider advisable. If the slightest softening of the surfaces treated as described occurs, they should be cut away again until the sound dentine is reached. * * *

"It will be found that teeth separated in this manner not unfrequently change their positions, (especially where they are crowded together,) and the surfaces treated come again in contact. This must be looked for, and as soon as it is discovered to have occurred, so much more of the same teeth must be cut away, so as to make the separations complete and permanent. * * *

"If it is discovered, on examination in the manner directed, that the surfaces merely of the enamel of the two teeth in contact are touched with decay, it will be sufficient to cut away one and polish the surface of the other, being sure to remove all the decomposed portions from both."

In Chapter VI, he treats the "Bicuspid and Molar Teeth."

"The next in order of the permanent teeth are the first bicuspid. They come at about the ninth year, and take their places between the remaining temporary molar and canine teeth. The obvious means of protecting these teeth from decay of the surfaces in contact with the temporary teeth, is to cut away portions of the latter. The advantages of this simple preventive measure, already successfully employed in the case of the first molar, are so plain, that it is difficult to conceive of any objection that can be made to it. With ordinary care on the part of the child under treatment, these teeth will now be secured from decay of the surfaces referred to until the coming of the second bicuspid. * * * The next teeth that make their appearance are the second bicuspid. * * * In carrying out this treatment, those teeth should be cut away which can spare the greatest amount of substance without injury. It is evident, in the treatment now to be applied to

the bicuspid and molar tooth, the latter should be selected, as it is much larger and can spare all the necessary loss of substance without risk of injury to the nerve. The separation of the two bicuspid teeth should be made by cutting away the mesial surface of the second bicuspid. By this plan the first bicuspid may be left entirely intact. * * * The only temporary teeth now remaining are the canine. As soon as those of the permanent set take their places, they should at once be cut away from contact with the first bicuspid and the lateral incisor. I generally prefer this to making the necessary separation by cutting away any portion of the first bicuspid. The latter tooth is, by this means, left entirely intact. * * *

"The second molars come at about the same time. They should at once be separated from the first molars. As these teeth can bear considerable loss of substance without approaching dangerously near to the 'nerve,' it is better to cut them both away in the manner shown.

"When the wisdom teeth make their appearance, they are to be separated in the same manner, if it be considered desirable to preserve them."

The quotations given, we believe, cover the author's mode of practice, but, to get a thorough understanding of his views, his book must be read and the practice carefully studied by the aid of the illustrations given.

The subject, as presented, must be considered free as possible from preconceived ideas. It must be judged solely by the weight of the facts presented. That these support the practice cannot be denied, but opinions will necessarily differ in regard to the policy of adopting it.

It is, without doubt, true, that all caries originate, primarily, by the destruction of enamel by acid depositions, and that these acid depositions are the agents for the future progress and development of the disease. It matters not where this place of lodgment exists, whether it is on the masticating surfaces of molars and bicuspid, the approximal surfaces, or wherever a depression exists or an artificial crack may be found, there will caries commence and pursue its destructive ravages. This is settled beyond cavil. It then becomes a question simply of treatment. Those who accept the facts in regard to the cause, demur at the plan proposed by our author, as it involves serious difficulties. Patients object seriously now to any "tampering," as they term it, with their teeth. The file is an instrument of terror, and the chisel ranks second to it. It is difficult to persuade them that a simple fissure is to all intents and purposes a cavity. What, then, must be the labor to instruct them that in the future the skill of the dentist must be directed to treatment in advance of any decay, and that by a process in direct conflict with their own prejudices and that of the profession generally? Dr. Arthur admits this difficulty as by far the greatest, and it must certainly be the principal bar to its adoption.

But we are not to consider difficulties that may arise with patients. The question is, are the facts brought forward true, and is the mode of practice correct? The writer of this is more and more convinced that they are absolutely true, and the mode of practice described is really the only one that meets all the difficulties. Every operator knows how often he is at fault in diagnosing caries of the teeth. This increases as we go back toward the molars. It is notorious that the bicuspid are the most difficult of all the teeth to preserve, and why? *They are neglected.* There is no other reason. As a rule, these teeth are closely contiguous on their proximate surfaces. Operators seem to be satisfied if their examination by the excavator fails to reveal decay above or below the point of impingement. If no softening to the touch is present the patient is dismissed. This kind of practice is inexcusable, when it is known that the cases are exceedingly rare that decay, in some stage, does not exist between these teeth. Caries, in the bicuspid, follows the general law of progressing in the direction of the tubuli, and that in speed proportionate to the density of the tooth. It does not make itself prominently visible on the enamel surface. The result is, the whole interior may be destroyed while the dentist is waiting for some visible sign to begin his reparative process. If this is a fact, and who can deny it, it becomes imperative on us to seek means to prevent the wholesale destruction. If Dr. Arthur's method meets this want then we must adopt it. In the writer's judgment it does meet it, and by no other process can it be so completely met.

The objector will assert that he can press these teeth apart at any time; and if caries is found fill the tooth and then allow the separated surfaces to come together again. That this can be done is true; that it will be equally ineffective is also true. If the apposition of surfaces invites conditions that predispose to decay, how is this to be avoided if the filling abuts against the opposite wall? Caries will progress in the tooth so pressed—like conditions producing like effects. If both teeth are filled and come together, then the edges of the fillings are endangered by the constant accumulation of acid secretions. There is no escape from this dilemma. All modes of filling that do not have in view the subsequent effectual cleansing of the surfaces must be radically wrong.

The effect of contact does not seem to be fully appreciated. We hear of clasps wearing the teeth. Strictly speaking, this is not true. The teeth are worn, but it is accomplished, mainly, by the clasp holding the secretions in contact and softening the tissue. Simple wear would not produce the results witnessed in so short a time. The fact that any roughness, however minute, will suffice for lodging acid secretions, is plainly evident at the edges of fillings left rough for future finishing. A day or two will suffice to make those edges intensely sensitive. In time this would result in a renewal of caries.

We cannot, in the limited space devoted to a review, go over all the points that bear directly upon this. Most of these are ably set forth in the pages of this work. There is one and only one serious objection that we feel can be urged against this practice, and that is, the possibility of the teeth coming together, or, in other words, the teeth may twist themselves by the absence of support on the separated surfaces. This is by no means a common occurrence, and it cannot be deemed a very serious objection, although Dr. A. alludes to it as a prominent difficulty.

While this book of Dr. Arthur may not cover the whole ground, it does seem to us that no bolder or clearer statement has ever been made to the profession, nor one which at the same time embodies more truth. The author's character is too well established to permit ridicule on the one hand or contempt on the other. He may be truly called "the Father of Modern Dentistry," for, by his introduction of adhesive foil, dental practice was revolutionized and the absurdities of old modes made to give place to perfection, or as near an approach to it as we shall probably ever reach with gold. As his mode made certain the salvation of many teeth previously condemned, so, we think, his present "new departure" will slowly but surely take root, and result in not the saving of the few, but the preservation of the entire set.

We hope this book will have a large sale, and we ask the thinking mind to carefully weigh its contents, and, as far as possible, make it the foundation for better practice in the future.

The Physician's Prescription Book, containing lists of the terms, phrases, contractions and abbreviations used in prescriptions, with explanatory notes, &c. To which is added a key, containing the prescriptions in an unabbreviated form, with a literal translation, for the use of medical and pharmaceutical students. By Jonathan Pereira, M. D., F. R. S. Fifteenth edition, 24mo, pp. 286. Philadelphia, Lindsay & Blakiston, 1871.

From one point of view, it is unfortunate that this little volume is as useful as it actually is; since an acknowledgment of its utility involves an admission of the deficiencies of the medical and pharmaceutical students for whom it is intended. But since the majority of students are as ignorant of the Latin language as they admittedly are, such works as these are not only useful but actually indispensable; and the one before us, in its fullness of detail and convenience of form, becomes most desirable to both the medical student and physician, and since students in dentistry are quite as deficient in these respects, to them also. Further commendation, however, is not required by a book which has already reached a fifteenth edition. We have little doubt we will soon be called upon to acknowledge the sixteenth.

Headaches: their Causes and their Cure. By Henry G. Wright, M. D., Member of the Royal College of Physicians of England, Physician to the Samaritan Free Hospital, &c. From the fourth London edition, 16mo, pp. 154. Philadelphia, Lindsay & Blakiston, 1871.

Few symptoms of disease are more frequently misinterpreted than headache, few are therefore less rationally treated; while the successful treatment of no affection redounds more to the credit of the physician in attendance. If the little work, therefore, of Dr. Wright will remedy the defects involved in the above facts, no treatise could be more useful to the medical practitioner. And although it would perhaps be saying too much to say of any work extant that it is thus useful, yet we feel certain that a reissue of Dr. Wright's treatise will be of great service, especially to the young practitioner, who is most apt to overlook the most important element in the study of headaches, their *varied* causes. Without a thorough appreciation of these, he may do more harm than good by his therapeutics. He is often, moreover, at a loss with regard to the latter, simply because his patient is apt to look for a specific remedy for the so-called disease, which is really only a symptom, and unless he is on his guard he may be temporarily influenced and misled by such expectation. A familiarity with Dr. Wright's little book will obviate such difficulties. No medical man, mindful of his own success, should be without it, while the perhaps greater frequency with which the dentist is liable to be called upon, in at least a semi-professional way, for advice on this subject, renders such a treatise indispensable to him also.

Selections.

TOXICAL EFFECTS OF HYDRATE OF CHLORAL WHEN PERSISTENTLY USED AS A HYPNOTIC, AND FATAL RESULTS OF LARGE DOSES.

BY N. R. SMITH, M. D., BALTIMORE.

In February last a medical friend, long retired from practice, called on me for advice in regard to a singular affection of the fingers of both hands, attended with desquamation of the cuticle and superficial ulceration, especially about the borders of the nails. It was attended with pain and much morbid sensibility to touch. It was also associated with some acceleration of pulse and general *malaise*. He visited me daily for some ten days, when by the use of astringent lotions and mild digestive (sic) ointment, the local affection was overcome. He informed me that he had been taking chloral in liberal doses, as a hypnotic, for four months. He expressed to me his conviction that the disease of his fingers had resulted from the use of that medicine.

Having never observed the agent to produce such a result, I was reluctant to believe that it was the case.

Some three weeks after the cure of the local affection, I was called to attend my friend in consultation with his family physician. We found him laboring under acute bronchitis in severe degree. His respiration was exceedingly embarrassed, and there was a high degree of hoarse mucous rale. The bronchial tubes were filling; the pulse was about 140, and the action of the heart *extremely feeble*. By the treatment adopted, our object was to sustain the powers of life, which were rapidly failing, and to relieve the bronchial tubes of mucus. Our efforts, however, were unavailing. He died on the third day after I first saw him.

I scarcely, at the moment, entertained a suspicion that the use of chloral was concerned in producing the fatal malady of my friend, it being not at all uncommon for persons of his age (70) to succumb suddenly to such malady from ordinary causes.

Some three weeks later I accidentally met a medical friend, who expressed

pleasure at the meeting, as he wished to consult me in relation to a singular affection under which his daughter, a young lady twenty-two years of age, was suffering. He described precisely the affections of the integuments of the fingers which had occurred in the case described above—erythematous inflammation, desquamation, and ulceration around the border of the nails.

Struck with the resemblance which her malady bore to that of my friend, Dr. C——, I inquired if she had been taking chloral. He replied that she had taken it as hypnotic for a month, every night, and that he had suspected that article to be the cause of her disease.

The young lady was not suffering constitutionally at that time; but about ten days after I was called to see her. I found her extremely ill. There was universal anasarca. The action of the heart was exceedingly feeble, the pulse 140, and extremely weak. Her respiration was much embarrassed, and the recumbent posture was impossible. Procuring some of the urinary secretion, I tested it with my nitric acid, and discovered a notable quantity of albumen.

I was very apprehensive of a fatal result, but immediately prescribed stimulants and diuretics, digitalis being the constituent most relied upon.

On visiting the patient, after an interval of a day, I was much surprised and gratified to find her greatly improved. Her pulse had been reduced to 90, and was greatly improved in tone. The kidneys had acted freely, and the anasarca had much abated.

Having been myself confined by illness, I did not again see her. On meeting her father some three weeks later, I was gratified to learn that she had entirely recovered.

I have knowledge of two other cases in which the same affections of the fingers resulted from the use of chloral.

Within the last ten days two deaths have occurred in Baltimore, manifestly from the toxæmia caused by an overdose of chloral. The subject of one of these accidents had been under the care of an irregular physician, and by his advice had taken chloral in ordinary doses for the relief of a painful neuralgic affection of the neck.

After the medical attendant had discontinued his visits, the patient persisted in the use of the hydrate, taking it, as I was informed by his brother, in doses of not less than half a drachm. On the day of his death he was known to have purchased three drachms of the article. How much he took during the day is unknown. In the evening he retired to his chamber, and in about twenty minutes after was found dead beside his bed. He was undressed, and the bed clothes were turned down, but the bed was undisturbed, and it was manifest that death had arrested him at the moment that he was prepared to step into bed. The coal oil lamp which he used was extinguished, but the glass chimney was still hot. The glass from which he had taken the chloral stood on a small table near the head of the bed, and in it were a few drops of the medicine, recognized by his brother by taste and smell. There can be no doubt, therefore, that he fell almost instantly dead from the effects of the poison.

Another instance of almost equally sudden death has recently occurred in this community. The fact is generally known, but I am not authorized to name the individual. He had been laboring under a painful affection of the head, and was attended by a homœopathic physician. On the evening of the night of his death he had a hypodermic injection of morphine practiced upon him, probably in ordinary quantity. This not relieving his pain, chloral was administered. He went to bed, soon became quiet, and for some hours was left undisturbed. His perfect stillness at length attracting attention, he was found to be dead, and probably had died soon after the administration of the chloral. I have no reason to believe that the medicine was given in larger doses than has been recommended as safe by high authority, nor do I know whether he had taken it for any length of time.

Another case of which I have knowledge was that of a lady, who had undergone a severe surgical operation. As she suffered pain, and was restless, it was determined, in consultation, to give chloral by injection, so as to avoid irritating the stomach. A drachm and a half was thrown into the rectum. She

at once sank into a state of insensibility, and died in some three hours. An eminent physician of Washington, who was in immediate attendance on the case, Dr. N. S. Lincoln, gave it as his opinion that she died from the effects of the chloral.

These cases are, it appears to me, amply sufficient to establish the toxic effects of this powerful agent. It is probable that its poisonous effects are exerted in two ways:—

1st. When given in a large dose, and especially when the system may have been charged with it by its previous administration, it at once overwhelms the powers of life, and causes immediate death.

Upon what organ or organs does it exert its deadly effects? It must be either upon the heart or brain, perhaps on both. It is believed that chloral, entering into the blood, develops chloroform in that fluid, the amount developed being determined not merely by the quantity taken, but by the condition of that fluid. Chloroform, we know, when respired, exerts its influence upon both brain and heart. In the numerous cases in which it has caused death, this result has been produced by its interrupting the circulation.

2d. It appears, when given in small doses and continuously for some time, to induce a form of toxæmia similar to that caused by the continued administration of ergot. Its effects on the fingers of both hands, in the two cases related above, would justify such a belief. It is well known that animals fed on spurred rye suffer gangrene of the extremities.

In one case in which I tested the urine, albumen in notable quantity was detected. This case alone, however, establishes nothing.

Another very interesting and important inquiry is certainly suggested by the foregoing observations, crude as they are.

If chloroform, developed in the blood from chloral, is productive of such disastrous effects, primary and secondary, can the direct inspiration of chloroform be as innocuous as it is thought to be?

The profession are sufficiently aware of the fatal primary effects of chloroform in numerous instances. It has undoubtedly caused death in many cases in which it has been given with every caution in regard to quantity and mode of administration—in cases, too, where there existed no malady of brain or heart to forbid its use. In some instances it has been administered fatally, in which it has been previously treated with good result.

But I would more especially call the attention of the profession to the chronic poisoning of the blood, which I believe results from its free and repeated use.

The writer of this article has administered chloroform perhaps as often as any other surgeon in America, both in hospital and private practice, commencing its use from the time of its discovery, and its first application as an anæsthetic. Indeed, I have been constrained to use it in many cases in which my judgment was adverse to its use, for such is the overweening confidence in its effects, that many patients refuse operations except under its influence. But the more I have used chloroform the less has my confidence become in its innocuousness. When I compare the results of my operations performed before anæsthetics were employed, with those performed during the last twenty years by the aid of chloroform, I am satisfied that unpleasant secondary results were less frequent during the past period than they have been under the use of that agent. I allude to secondary hemorrhage, pyæmia, erysipelas, and hospital gangrene.

Whoever will take the trouble to look over the medical journals and retrospects of the last two years, will discover that pyæmia or septicæmia occupies far more space in surgical records than it did before anæsthetics were so generally employed.

When chloroform is administered during the period of an hour or more, as it frequently is, it undoubtedly enters copiously into the circulation, not only powerfully impressing the brain and heart, but modifying the constitutions of the blood and functions of the capillaries. If the effect of chloroform, developed from chloral in the blood, be such as I have shown on the functions of the minute vessels, causing erythema and ulceration in the extreme parts, may we

not suppose that the introduction of chloroform more directly into the circulation may promote the occurrence of those results not uncommon before its use?

These suggestions, I trust, will not be regarded as impertinent from one who has practiced surgery for more than half a century, without and with the anæsthetic agents.

I doubt not that, if these remarks are deemed worthy of any notice at all, they will be rejected by the majority of the profession, but I have an abiding confidence that their truth will be ultimately acknowledged.—*Druggists' Circular*, Dec., 1871, from *Boston Medical and Surgical Journal*.

TEETH PARASITES—SUGAR AND THE TEETH.

F. Graham Young, of Bristol, England, writes, (*British Jour. Dent. Science*, *Canada Journal Dent. Science*;) "From the following statement of Dr. J. H. Bowditch, of the United States, it would appear that organic life must be found in the matter taken from between the teeth: 'Having examined with a microscope, matter deposited on the teeth and gums of more than forty individuals, selected from different classes of society and in every variety of bodily condition, in nearly every case he discovered animal and vegetable parasites in great numbers; in fact, that the only persons whose mouths were found to be entirely free from those parasites cleaned their teeth four times daily, using soap once. Among the various agents applied were tobacco juice and smoke, which do not impair the vitality of the parasites, nor does chlorine, teeth-wash, pulverized bark, soda, ammonia, &c.; however, pure white soap destroys the parasites naturally. M. Larez, of France, has proved that sugar from either cane or beet is injurious to healthy teeth, either by immediate contact with them or by the gas developed, owing to its stoppage in the stomach. If a tooth is macerated in a saturated solution of sugar it becomes gelatinous, and its enamel opaque, spongy and easily broken. This modification is due not to free acid, but to a tendency of sugar to combine with the calcareous basis of the teeth.'"—*Medical Cosmos*, Nov., 1871.

EXTRACTS OF MEAT.

In the *Moniteur Scientifique* (*Chem. News*) Dr. P. Muller, in a physiological point of view, treats of this subject under the following heads:—"On muscular liquid; on beef-tea and meat extracts; on the organic principles present in these substances; action of potassa salts. The following conclusions are drawn by the author from his researches, corroborated by those of a great many others, among these Liebig and Virchow:—Meat extracts are neither directly nor indirectly food, for they do not contain albumenoid matter, neither do the nitrogenous principles which they contain arrest dis-assimilation; that is, they do not prevent the waste of the organic matter which composes the body. In small doses, these extracts are useful by the stimulant action of the potassa salts, which promote digestion and circulation; in strong doses—too large quantity at once—these substances may have a very injurious effect. When given to convalescents from serious diseases, especially if the system is exhausted by prolonged abstinence, the potassa salts, present in these extracts in large quantity, will act more injuriously, because the system has lost a great deal of chloride of sodium; instead of then promoting the nutrition, these substances will interfere with it—(1) by the direct action of the potassa salts on the blood globules, whereby the absorption of oxygen of these globules is greatly decreased; (2) by the predominance of such salts in the serum of the blood, which only physically dissolve carbonic acid, and do not allow the normal quantity of that gas to be exhaled, and thus impede the access of oxygen. Medical men should bear in mind that if given alone these extracts, and the same applies to beef-tea, are no nutriment, and only tend to keep the convalescent weak, and not only ill fed but not at all fed."—*Medical Cosmos*, Nov., 1871.

ANOMALIES OF DENTITION.

In an instructive address on the Laws of Organic Development, to the Amer. Assoc. for the Advancement of Science, (*Amer. Naturalist*,) Prof. E. D. Cope observes: "Structural characters are known in many, if not all, species which are said to be 'inconstant,' being present or absent indifferently, thus being useless for definition. They may be rudimental when present or considerably developed. The presence or absence of wings in some species of insects may be cited; also the presence of generic characters in the male sex of many Coleoptera and their absence in the females. The characters of males, females, workers and soldiers in bees and ants may be added. All these facts belong to the same category as those cited among deer and molusks, and have a similar explanation.

"It does not seem to be the law in 'retardation' that parallelisms exhibited by the series in its rise to its highest point of development should retrace the steps by which it attained it, and that 'exact parallelisms' should be exhibited in a reversed order. Parallelisms, it is true, are exhibited; but so far as I have observed, always 'inexact,' often in a high degree. A marked case of retardation occurs in the dental development of a number of persons who have come under my observation in the neighborhood of Philadelphia. It is not very uncommon to find persons in whom the third molars in both jaws are incomplete as to number, one, two, three, or all, being deficient. It is still more common for them to be incompletely covered by the enamel layer, and to become, in consequence, so worthless as to require early removal. I am acquainted with two families in which the absence of the exterior upper incisor on each side is common. In one of these the second and third generation have inherited it from the mother's side, and it now characterizes many of the children. The significance of this modification will be best understood by examining the dental structures of the *Quadrumana* in general. Commencing with the highest family and the modification, we have:

		Incisors.	Canines.	Premolars.	Molars.
<i>Hominidæ</i> , . . .	{ Abnormal,	$\frac{1}{2}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{2}{3}$
		$\frac{2}{2}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{3}{3}$
<i>Simiadæ</i> ,		$\frac{2}{2}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{3}{3}$
<i>Cebidæ</i> ,		$\frac{2}{2}$	$\frac{1}{1}$	$\frac{3}{3}$	$\frac{3}{3}$
<i>Lemuridæ</i> ,		$\frac{2}{3} - \frac{3}{3}$	$\frac{1}{1}$	$\frac{3}{3} - \frac{2}{3}$	$\frac{3}{3}$
<i>Mammalia</i> , Normal,		$\frac{3}{3}$	$\frac{1}{1}$	$\frac{4}{4}$	$\frac{3}{3}$

"In this table we see a decline in the number of teeth of the higher groups: Thus the premolars are one less than the nominal number in the whole order, and they lose one in each jaw in the Old World apes and man. The molars maintain the normal number throughout, but the third in both jaws is, in the *Simiadæ*, reduced by the loss of a fifth or odd tubercle, thus becoming four-lobed. In the upper jaw this is first lost in the *Semnopithecus*; in the lower in the next highest genus, *Cercopithecus*. In *Homo* its appearance is 'retarded,' the interval between that event and the protrusion of the second molar—six to ten years—being relatively greater than in any genus of *Quadrumana*. Its absence is then the result of continued retardation, not of a new and adaptive suppression, and is of direct systematic zoological value.

"In the incisors a reduction is also plainly visible, as we pass from the most completely furnished *Lemuridæ* to the genus *Homo*. One from the upper jaw is first lost, then in the *Cebidæ*, one from the lower also. The number remains the same through the *Simiadæ* and normal *Hominidæ*, but in the abnormal cases cited the process of reduction is continued, and another incisor from each side disappears. That this also is truly 'retardation,' is also evident from the fact that the exterior incisor is the last developed, being delayed in ordinary growth a year later than those of the inner pair. The same retardation is seen in the quadrumane *Cheiromys*, (the *Aye-aye*,) and the whole order *Rodentia*. In the latter, the rare presence of the reduced second incisors shows that here also

the external incisors are lost. This retardation is also of systematic importance, and, should either of the characters described be constant in any of the species of the genus *Homo*, would at once entitle it to new generic rank. The very frequent absence of the posterior molars (wisdom teeth) has been recently found to characterize a race in India. Should this peculiarity prove constant, this race would with propriety be referred to as a new genus of *Hominidæ*, as we have many cases of very similar species, being referable to different genera. It is altogether probable that such will, at some future time, be the condition of some race or races of men."—*Dental Cosmos*, Dec., 1871.

ANOMALIES OF DENTITION.

Prof. Richard Owen, LL.D., A. M., of the Indiana State University, (*Sci. Amer. and Phrenological Jour.*,) stated "that the intermarriage of blood relations is a physiological error, and he might almost say, with our knowledge of such matters, a crime. Speaking from a close observation of this subject for many years of all the families of his acquaintance where close intermarriage had been permitted, the children were either deaf mutes or were afflicted by some deficiency. He knew a young man whose father was a physician, and who should have known better than to marry a double cousin; but the consequence was, as the last portion of the osseous system developed, the young man, from the intermarriage of those in whom the same material was deficient, was prevented from having a tooth at any period. His sister had but two or three small stubs of teeth, and their brother was altogether deficient in his mental faculty. He insisted that it was a great crime for parents to allow their children to grow up with the idea that they might ever intermarry with blood relations. It should be a thing never to be thought of, the intermarriage with those connected by ties of consanguinity.

"Mr. Ferguson knew of a case in Ohio, where some thirty families had married and intermarried until they could no longer tell their relationship. Most of the progeny were deaf mutes, and the remainder but a little above idiotic."—*Dental Cosmos*, Dec., 1871.

NASO-PHARYNGEAL POLYPUS.

Mr. Cooper Forster (*Lancet*, May 20, 1871) reported the following case to the Clinical Society of London: The patient was nineteen years of age, and had a large growth filling up the left nostril, firm, fleshy and fibrous, and covered with mucous membrane. The right nostril was not much interfered with; there was no swelling of the face or fullness of the palate, nor any projection in the throat. Chloroform was given, and a wire snare put round the growth, which broke off and bled profusely. Mr. Forster then made a further examination, and, having passed his finger up the nostril, found an enormous growth, which could not be circumscribed, but large portions of which he tore away with forceps. Four days after the operation the patient suddenly became unconscious. The right half of his face was numb, and though he rallied he was never able to speak, except to say "too-too." The temperature rose to 102° F. He had three convulsive fits on the seventh day, and became totally unconscious, and died twelve days after the operation. The post-mortem examination showed general arachnitis, and sloughing of the brain about Broca's convolution. That portion of the growth which had not been removed occupied the left side of the external base of the skull, and filled the space between the greater and lesser wings of the sphenoid, the orbital plate of the frontal, and the cribriform plate of the ethmoid bone. It had extended from the nasal fossa by way of the sphenoidal fissure into the back of the orbit, but without damaging the optic nerve. The cribriform plate of the ethmoid was broken, and at the back part there was a small opening, about a quarter of an inch in diameter, and a fracture extending forward from the opening. Microscopic examination showed the growth to consist of small fusiform cells and stellate connective tissue.—*Philadelphia Medical Times*, August 15, 1871.

FEEDING AND STARVATION IN THE PRODUCTION AND CURE OF DISEASE.

In one of his Croonian lectures, (*Med. Press and Cir.*), Prof. E. A. Parkes makes the following pertinent observations on this subject: "Lately, for an experiment, I cut off all nitrogen from the food, and fed a man for five days on fat and starch only. The voluntary muscles when kept in action retained their full power—whatever nitrogen they required they still got; and on the fourth day the man did an extremely hard day's work, which was equal to 720 tons lifted one foot. The voluntary muscles, excited by the will, could therefore produce as much force as ever, although starved of nitrogen; but it was otherwise with the involuntary muscles. The heart began to suffer in nutrition, and its power was reduced, as shown by the sphygmograph, nearly one half. I draw the conclusion from this experiment, that if the nitrogen is cut off, and the voluntary muscles are kept in their usual action, they do not fail, but that the power of the heart may be thus reduced if it be desired to do so. In other words, the food the heart requires is attracted from it by more potent actions. Here, then, we possess a power of affecting the action of the heart, if it be needed. Then may it not be that the involuntary muscles, whose nutrition is regulated by their nerves, may in like manner, as long as the nerves maintain their structure, have a priority, so to speak, in the power of obtaining nutriment, over the various cellular elements whose growth is independent of the nerves? Although I do not see how to bring this to experimental proof, it seems probable that if a nerve causes an involuntary muscle to contract, that muscle will take the nitrogen it requires, and will be nourished when a cell which merely takes what comes to it would not be. Would it not be possible, therefore, to starve an overgrowing part? That the heart may be thus starved I cannot from the evidence doubt. But could not the rapidly growing cells of an irritated liver, or the proliferating cells of a mucous membrane, be thus starved? But can we not go beyond this? In overfeeding we have the simple explanation of many enlarged livers; and in starvation from nitrogen possess the readiest and simplest cure. Is it possible that the cells of a carcinomatous tumor could be thus stunted in their growth? All these formations must follow the usual law of nutrition; if fed they will grow; if starved they will die. It seems a most wonderful thing to us that from some external irritation, it may be a scratch, a blow, or a fall, some cells in a structure of the body, the breast, the uterus, or the liver, will suddenly begin to exhibit the marvelous power of growth, and we stand aghast at the rapidity with which cell forms cell in the growing nitrogenous network which we call cancer. At present we are hopeless before a cancer. Where we can do so we extirpate it, or we attempt, by local corrosives, acetic acid, or other substances, to destroy the nutritive power of its cells. At present we do not know how to remove again from it that marvelous power of growth which a common irritation, it may be, had called forth. But might we not try to starve it? Consider what it is. It is a congeries of nitrogenous cells, gifted with immense proliferative power, absorbing the nitrogen which is intended to nourish other parts, and needing that supply of nitrogen for their growth. Who has not seen a man fed with the most nourishing food, and wasting daily in every part of the body but one. The nitrogen was stopped, it may be, in the liver, when a cancerous mass, weighing some ten or even eighteen or twenty pounds may have formed in a few months. What was the good of that feeding? What benefit had the rest of the body? Was wasting and weakness stopped for a day? It is much to be feared that the care and affection which tempted the patient with every delicacy, merely gave so much power to the enemy which was killing him. So, again, in cancer of the cardiac orifice of the stomach, with what rapidity it grows, and how, when all other parts waste, that alone is nourished. It is a significant circumstance, which all have noticed, that the majority of rapidly-growing malignant growths occur in the latter period of life, when the organs, voluntary and otherwise, begin to decline in activity, and when, therefore, if as much food is taken, the amount of disposable nutritive material becomes too great."—*Medical Cosmos*, Sep., 1871.

THE USE OF IODOFORM.

The use of this compound, (*Druggists' Circular*, Dec. 1871) first brought prominently into notice by Bouchardat, is now employed extensively, not only for glandular enlargements, but, also, owing to its anæsthetic properties, in skin diseases accompanied with intense pruritus. Its odor is much more agreeable than that of chloroform, resembling that of saffron. Moretin and Humbert recommend it for internal use as possessing all the advantages of iodine, of which it contains 90 per cent., without any of its inconveniences. It exercises upon the sphincters a local anæsthetic effect so powerful that defecation is sometimes performed unconsciously after its use; it therefore forms an admirable suppository in cases of hemorrhoids, &c. Moutre's formula is, iodoform, powdered, 20 grains; cocoa butter, one ounce; melt, mix and divide into six suppositories. For frictions, the ointment is used in the strength of one drachm to the ounce of simple ointment.—*Medical Times and Gazette*.

CHLORALUM.

Dr. Edward Ballard, Medical Officer of Health for Islington (*Chemical News*, January 20, 1871,) protests against the assertion made by Professor Gamgee, that carbolic acid, owing to its smell, is less used than it would be if without odor, and recommends caution in accepting chloralum as a disinfectant. In his own experience he has found carbolic acid "a most efficient agent for destroying contagia," and that its odor is not offensive unless contaminated with sulphide of ammonium.

He objects to the inference that because chloralum is *antiseptic* it is also *disinfectant*, and to Professor Gamgee's assuming its disinfecting power from its chemical properties as an antiseptic. A disinfectant, he says, is an agent which will destroy the vitality—the power of growth and reproduction—of most minute particles of matter which, given off by the sick, are capable of producing a like disease in the healthy. He thinks that to prove that any substance is a disinfectant, it should be shown by experiment, by an accomplished microscopist, to have the power of destroying the vital manifestations of those minute amœbiform particles of matter which constitute the simplest form of living things, and, by repeated experiment upon a large scale, that the reputed use of the disinfectant has actually resulted in the arrest of the spread of contagious disease. He is of opinion that Prof Gamgee has advanced nothing to satisfy any one that chloralum, used in any way, is capable of destroying the peculiar manifestations of a morbid contagion, and thinks that the reason for its rapid strides into the favor of medical men (who are apt to take up new disinfectants in a "wild manner") may be found in that freedom from odor which Prof. Gamgee considers the basis on which the reputation of Condy's fluids rests.

Dr. Ballard gives as a reason for not having tried chloralum himself, though small-pox and scarlet fever are raging in his district, that he dare not assume the responsibility of its use until *prima facie* proof at least is afforded him that by using it he will be using that which is capable of destroying "disease-germs."

In the same journal (January 27, 1871,) Prof. Gamgee expresses his high appreciation of the value of the suggestions made by Dr. Ballard with regard to means for investigating and proving the mode of action of substances offered as disinfectants, but thinks that little would be learned experimentally about any of them if all persons who, like Dr. Ballard, have abundant opportunity of testing the matter, waited instead of acting.

He states that chloralum shrivels, arrests the movements of, and kills the amœbiform bodies referred to—and does more, it destroys many of the lower forms of parasitic life, whether animal or vegetable. He is convinced that every good antiseptic is really a destroyer of disease. He adds that the properties of chloralum are almost identical with the active antiseptic and disinfectant properties of hydrochloric acid.—*Druggists' Circular*, Dec., 1871.

IRON PAPER.

The Upper Forest Tin Works, near Swansea, England, have capped the climax of thin paper. They have produced a sheet, $10 \times 5\frac{1}{2}$ inches, weighing 20 grains, which is but 16 grains for 44 surface inches, and it requires 4 800 placed side by side to make one inch in thickness. This stands on record as the thinnest sheet of iron ever rolled. The thinnest sheet of tissue paper to be purchased measures the 1200th part of an inch—four times as thick as this.—*Druggists' Circular*, Dec., 1871.

A NEW STYPTIC.

We extract the following formula from the *Georgia Medical Companion* for November, 1871:

Collodion, 100 parts; carbolic acid, 10 parts; tannin, (Pelouse's,) 6 parts; benzoic acid, (from gum,) 5 parts. Mix the ingredients in the order above written, and agitate until perfect solution is effected. This preparation has a brown color, and leaves, on evaporation, a strongly adherent pellicle. It instantly coagulates blood, forming a consistent clot, and a wound rapidly cicatrizes under its protection.—*Carlo Parvesi*.—*Amer. Journal of Dental Science*.

THE OPALS UNDER THE MICROSCOPE.

At a late sitting of the Imperial Academy of Sciences at Vienna, Professor von Hochstetter communicated some microscopic investigations on opals, by Dr. H. Behrens, in which the author states that most opals are mixtures of various minerals, including a colorless fundamental mass, containing (microscopically discoverable,) hydrophane-cacholong, quartz, hydrated and anhydrous oxide of iron, ferriferous silicates, metallic sulphurets and carbonates, and organic substances; fire-opal, glass-opal, noble-opal and hyalite are free from admixture, and the first two are structureless. The colors of the noble-opal are interference colors, caused by lamellæ, which, however, are not tabular crystals. The double refraction discovered by Schultze in hyalite is caused by differences of elasticity, such as occur in dextrin, amber and compressed glass. The author also noticed the spheroidal structure which frequently occur in opals.—*Druggists' Circular*, Dec., 1871.

ARTIFICIAL RESPIRATION IN SUSPENDED ANIMATION.

In Bain's method, (*Georgia Medical Companion*, November, 1871,) the patient is laid upon his back on a table, and the operator, standing at the head, pulls the shoulders horizontally toward him with a certain degree of power, placing, for this purpose, the fingers of each hand in the axilla, in their front aspect, with the thumbs on the clavicles. In Pacini's method, the patient and operator are in the same relative position, but the operator takes hold of the arms of the patient behind, and close to the armpit; while the thumb is in front of the head of the humerus. He then pulls both shoulders toward him, and lifts them in a perpendicular direction, by which means the sternum is first raised by means of the clavicle, and, in consequence, the ribs, which, diminishing their obliquity to the spine, enlarge the thoracic cavity both in its transverse and antero-posterior diameters. A committee of the Medico-Chirurgical Society report that by either plan, as also by Dr. Sylvester's, of which they are merely modifications, a sufficiently large quantity of air is without difficulty introduced into the chest.—*Braithwaite's Retrospect*.

Dental News and Miscellany.

ACKNOWLEDGMENT.—We are under great obligations to Dr. W. M. Herriott, of Zanesville, Ohio, for the valuable report of the Ohio Dental Association, published in this issue. We are also in receipt of communications which we are compelled to defer to the April number.

EDITORIAL CHANGE.—Drs. Geo. J. Ziegler and J. H. McQuillen have retired from the editorial management of our excellent cotemporary the *Dental Cosmos*. This journal has long been an acknowledged authority in dental science, while we have always looked upon its department of selections as the most extended and varied we are in the habit of seeing among exchanges,

We understand that in the future Mr. James White will assume its management as sole editor. Mr. White is already well known as a contributor to dental literature, and we have no doubt that under his control the *Cosmos* will continue its well deserved reputation.

HARVARD DENTAL SCHOOL.—At an adjourned meeting of the Board of Overseers of Harvard University, it was voted to repeal the clauses that required the professors of dental pathology and therapeutics, operative dentistry and mechanical dentistry to be graduates of a medical school with a medical degree.

THE LONDON SCHOOL OF DENTAL SURGERY.—We learn from the *British Medical Journal* of October 7th, 1871, that since the opening of this now flourishing school, the original staff of lecturers remained unbroken until very recently, when Mr. Ibbetson and Mr. Hepburn resigned their lectureships on the Anatomy and Physiology of the Teeth and on Mechanical Dentistry respectively. These vacancies have been filled by the appointment of Mr. Chas. S. Tomes and Mr. James S. Turner.

DENTAL DIPLOMAS.—The *British Medical Journal*, (October 7th, 1871,) in an article upon the subject of "Dental Diplomas," states that a supplementary charter was granted to the College of Surgeons of England twelve years ago, by which this body was enabled to take upon itself the business of organizing the dental profession throughout the Kingdom. It was expected that a great majority of the respectable existing practitioners of dental surgery would join the college, and thus make the license in dental surgery the indispensable necessity of every respectable practitioner entering the profession of dentistry. The following figures show how far that hope has been disappointed. The number of dentists in England is 2,000; in Ireland 150; in Scotland 25. Two hundred and sixty-three of this number presented themselves for examination. Those who have taken the diploma after fulfilling the curriculum were, from 1864 to 1871, 43 in all.

An effort is now being made to induce the College of surgeons to open its doors again to those dentists who were in practice prior to 1864, but who did not present themselves for examination within the time of grace specified by order of the Council of the College.

DENTAL STUDENTS AND THE SMALL-POX.—We are informed that quite a number of gentlemen, who had designed matriculating at the Dental Colleges of this city, have been debarred from coming on account of the epidemic of small-pox now prevailing. Indeed, we know two gentlemen, (and there may have been more,) who actually arrived in the city, and who, on learning the state of affairs, beat a hasty retreat. Now it would seem almost needless to say to any students of a profession so closely allied to medicine as is dentistry, that such a course is not only unnecessary, but also very unwise. For in the first instance such gentlemen should be aware of the entire protective power of vaccination when recently practiced, and in the second place, the loss of a year in the date of one's graduation, or even the giving up the alma mater of one's choice, when such protection is possible and so easily obtained, can scarcely be considered an act of superior judgment. Moreover, all excuse is removed when it is known that both schools afforded the opportunity of gratuitous vaccination to its students.

ANCIENT DENTISTRY.—From the *Medical and Surgical Reporter* we take the following on Ancient Dentistry:

Dr. Reed, of Terre Haute, Indiana, read a paper upon Ancient Dentistry. Among the ancients great success was obtained in this art. Caselius was a dentist in the reign of the Roman triumvirs and gold was used in filling. But nearly 500 B. C. gold was thus used, and gold wire was employed to hold artificial teeth in position, and it does not seem to have been a new art. A fragment of the tenth of the Roman tables, 450 B. C., has reference to preventing the burial of any gold with the dead except that bound around the teeth. Herodotus declares that the Egyptians had a knowledge of the diseases of the teeth and their treatment 2,000 B. C. In Martial, Caselius is mentioned as either filling or extracting teeth—but he specified that he would not polish false teeth with tooth powder. Lucian mentions an old maid who had but four teeth and they were fastened in with gold. These facts cover a period of 600 years.

DEAD MEN'S TEETH.—During the days of the resurrectionists or body-snatchers, when graveyards were subjected to pillage for supplying anatomists with subjects for dissection, the teeth from dead bodies formed a frequent article of sale to dentists. Sometimes graves were opened for the teeth alone, as being small and easily concealed articles. Mr. Cooper, the surgeon, relates an instance of a man feigning to look out for a burial place for his wife, and thus obtaining access to the vault of a meeting house, the trap door of which he unbolted; at night he let himself down into the vault, and pocketed the front teeth of the whole of the buried congregation, by which he cleared fifty pounds. Mention is made of a licensed sutler or cantineer, during the Peninsular War, who drew the teeth of those who had fallen in battle and plundered their persons. With the produce of these adventures he built a hotel at Margate; but his previous occupation being discovered, his house was avoided and disposed of at a heavy loss. He afterward became a dealer in dead men's teeth.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.



TRUSTEES.

HENRY C. CAREY, PRESIDENT,
W. L. ATLEE, M. D.,
ELLERSLIE WALLACE, M. D.,
BENJAMIN MALONE, M. D.,
W. W. FOUCHE, D. D. S.,
J. D. WHITE, D. D. S.

S. DILLINGHAM, D. D. S.,
G. R. MOREHOUSE, M. D.,
THOMAS WOOD,
HON. W. S. PEIRCE,
GEORGE TRUMAN, M. D.,
CHARLES HAMILTON, Sec'y.

FACULTY.

T. L. BUCKINGHAM, D. D. S.,
PROFESSOR OF CHEMISTRY.

E. WILDMAN, M. D., D. D. S.,
PROFESSOR OF MECHANICAL DENTISTRY AND METALLURGY.

G. T. BARKER, D. D. S.,
PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS.

JAMES TRUMAN, D. D. S.,
PROFESSOR OF DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

JAMES TYSON, M. D.,
PROFESSOR OF PHYSIOLOGY AND HISTOLOGY.

J. EWING MEARS, M. D.,
PROFESSOR OF ANATOMY AND SURGERY.

E. R. PETTIT, D. D. S.,
DEMONSTRATOR OF OPERATIVE DENTISTRY.

C. E. EDWARDS, D. D. S.,
DEMONSTRATOR OF MECHANICAL DENTISTRY.

W. R. MILLARD, D. D. S.,
ASSISTANT DEMONSTRATOR OF OPERATIVE DENTISTRY.

A. B. ABELL, JR., D. D. S.,
ASSISTANT DEMONSTRATOR OF MECHANICAL DENTISTRY.

E. WILDMAN, DEAN,
 1205 Arch Street.

 PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Sixteenth Annual Session, 1871-'72.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, when ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability. During October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on Wednesday, the first day of November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation, and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND MICROSCOPIC ANATOMY.

The lectures from this chair will include human physiology, histology and physiological chemistry, with such portions of comparative physiology as are essential to a comprehensive understanding of the subject. The doctrines of life and organization will be appropriately considered. The course will be amply illustrated by appropriate diagrams, chemico-physiological experiments and vivisections, as well as by microscopical demonstrations.

ANATOMY AND SURGERY.

The instruction in this department will embrace a systematic course of Lectures on Descriptive and Surgical Anatomy, fully illustrated by dissections on the *cadaver*, preparations, models, drawings, &c.

The minute anatomy of the various organs and tissues of the body will be shown by the class microscope, and particular attention will be given to the demonstration of the anatomy of the head and face.

Clinical instruction in the diagnosis and treatment of the surgical diseases of the mouth will be given once a week by the incumbent of the chair. Students will thus have the opportunity of studying oral diseases, and witnessing the operations adopted in their treatment.

CLINICAL INSTRUCTION.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the demonstrators.

IN THE OPERATIVE DEPARTMENT.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

IN THE MECHANICAL DEPARTMENT.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

PRACTICAL ANATOMY.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

HOSPITAL CLINICS.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEEES.

Matriculation, (paid but once,) - - - - -	\$5 00
For the Course, (Demonstrator's ticket included,) - - - - -	100 00
Diploma, - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Gray's, Leidy's, or Sharpey & Quain's Anatomy; Kirke's Physiology, (English edition); Dalton's or Flint's Physiology; Tyson's Cell Doctrine; United States Dispensatory; Pereira's or Stille's Therapeutics; Fownes Elements of Chemistry; Brandt & Taylor's Chemistry; Flint's Practice of Medicine; Tanner's Practice; Tomes' Dental Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the same subjects.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupillage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

For further information, address

E. WILDMAN, Dean,
No. 1205 Arch Street, Philadelphia.

BOARD can be obtained at from \$4.00 to \$8.00 per week.

ALL THE INSTRUMENTS AND TOOLS required can be procured for from \$15.00 to \$20.00.

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA, PA.

The regular winter session will begin on the second Monday in October, 1871. Free Preliminary Lectures open on the 4th of September and continue until the beginning of the regular course. A supplementary course is given during April, May and June, illustrated by bedside clinics at the Philadelphia Hospital, also by the clinics of the College and various hospitals of the city. Every facility will be afforded to the student. Board, \$4.50 to \$6 per week. For announcement containing full particulars, address

B. HOWARD RAND, M. D.,
DEAN OF THE FACULTY.
Oct'71-1yr.

M. L. FREDERICK,

Engraver of

Seals, Card and Door-Plates,
153 South Fourth Street,

PHILADELPHIA.

THE
DENTAL TIMES.

VOL. IX.

PHILADELPHIA, APRIL, 1872.

No. 4.

NOTICE TO SUBSCRIBERS.

The present number completes the volume. Those who desire the **TIMES** regularly, will forward the subscription price previous to the issue of Vol. 10.

Our terms are one dollar a year, in advance; a price so moderate that no one can be inconvenienced by its outlay.

We invite the earnest co-operation of our friends everywhere in increasing our subscription list, as well in renewing their own.

with a view to examining its interior. Judge of my surprise and mortification upon discovering the point of one of S. S. White's nerve broaches imbedded in the canal! I used just such an instrument in treating the case, and suspect that I must have left it in there, although I don't remember anything about the breaking of any such instrument in the case. It certainly adds nothing to my credit to leave so much steel in the root of a tooth, and yet I hardly know how I could have removed it had I known it was there—but I certainly should have attempted it. Now, I wish to ask if the presence of the steel alone prevented the tooth from healing, or caused the necrosis

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

For further information, address

E. WILDMAN, Dean,
No. 1205 Arch Street, Philadelphia.

BOARD can be obtained at from \$4.00 to \$8.00 per week.

ALL THE INSTRUMENTS AND TOOLS required can be procured for from \$15.00 to \$20.00.

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA, PA.

The regular winter session will begin on the second Monday in October, 1871. *Free* Preliminary Lectures open on the 4th of September and continue until the beginning of the regular course. A supplementary course is given during April, May and June, illustrated by bedside clinics at the Philadelphia Hospital, also by the clinics of the College and various hospitals of the city. Every facility will be afforded to the student. Board, \$4.50 to \$6 per week. For announcement containing full particulars, address

B. HOWARD RAND, M. D.,
Oct'71-1yr. *DEAN OF THE FACULTY.*

M. L. FREDERICK,

Engraver of

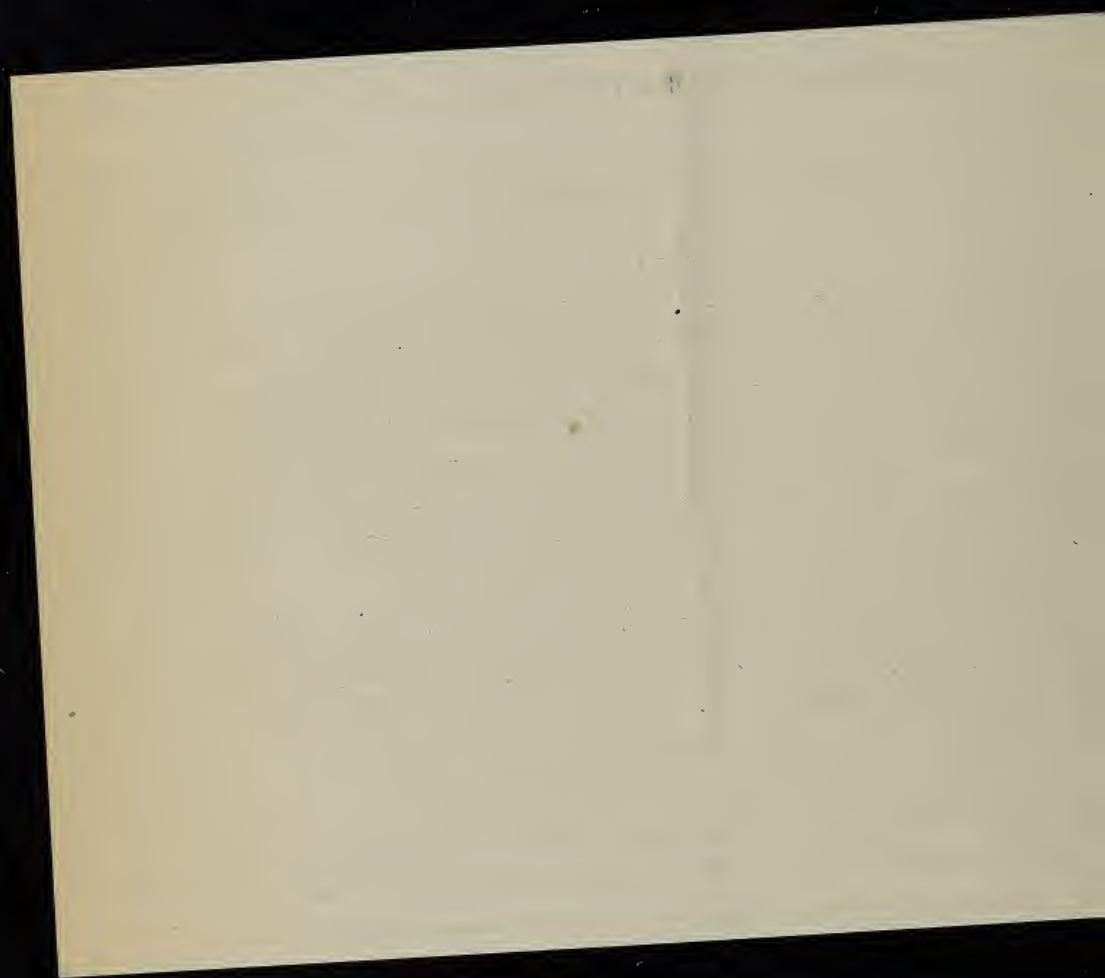
Seals, Card and Door-Plates,
153 South Fourth Street,
PHILADELPHIA.

NOTICE TO SUBSCRIBERS.

The present number completes the volume. Those who desire the **TIMES** regularly, will forward the subscription price previous to the issue of Vol. 10.

Our terms are one dollar a year, in advance; a price so moderate that no one can be inconvenienced by its outlay.

We invite the earnest co-operation of our friends everywhere in increasing our subscription list, as well in renewing their own.



THE DENTAL TIMES.

VOL. IX.

PHILADELPHIA, APRIL, 1872.

No. 4.

Original Communications.

A CASE IN PRACTICE.

BY G. W. ADAMS, D. D. S.

On the 14th day of April, 1870, a young lady called at my office, suffering with an aching superior central incisor that had been filled some-time before in the mesial surface with gold. Because of her suffering, and at her request, I removed the plug, and found the nerve had been exposed and wounded. Abscess was imminent—it resulted, and discharged through the cavity of decay quite freely. The pulp (or as much of it as I could get) was removed at future sittings, and the cavity treated with tepid water, creasote, &c., until the 17th of the next month, when the case was dismissed for awhile, to afford nature a chance to cure what the dentist could not. But the tooth becoming very loose and dark, the alveolus affected, and the gums purple and sore, it presented no indications of ever producing the least satisfaction; hence, it was extracted preparatory to inserting an artificial one. The alveolus was slightly affected with superficial necrosis. Two small pieces of the process were removed after the root was extracted. The carious crown crushed beneath the forceps. After the patient departed, the root was sawed in two with a view to examining its interior. Judge of my surprise and mortification upon discovering the point of one of S. S. White's nerve broaches imbedded in the canal! I used just such an instrument in treating the case, and suspect that I must have left it in there, although I don't remember anything about the breaking of any such instrument in the case. It certainly adds nothing to my credit to leave so much steel in the root of a tooth, and yet I hardly know how I could have removed it had I known it was there—but I certainly should have attempted it. Now, I wish to ask if the presence of the steel alone prevented the tooth from healing, or caused the necrosis

and led to the final loss of the organ? And further, will the immediate insertion (next week,) of an artificial tooth (on vulcanized rubber,) be any detriment to the healing of the afflicted parts?

I lost another tooth last summer. Nerve paste was applied to a superior bicuspid twice without much effect—the third time the pulp was found dead and removed. The cavity was syringed out with tepid water and wiped with cotton, then bathed with creasote, and a piece of cotton, moistened with creasote, placed in the canal, and the cavity sealed up with sandarac and cotton. No abscess resulted, but absorption of the alveolus was so great that the tooth became too loose to keep in the mouth, and was extracted in some six or eight weeks afterwards, without having been filled or causing much suffering. This tooth also turned a little dark—not much. I did not dissect it. What caused the loss of the tooth? the arsenious acid? or must there have been a piece of steel left in *it* too?

BRISTOL, PA.

[REMARKS.—It is not at all probable that the steel wire had anything to do with the case first mentioned. It had not penetrated the foramen. As a rule, all pieces of steel should be removed, and this is probably best accomplished by the use of a broach wrapped with cotton. If the attempt to remove proves a failure fill around it, care being observed not to force it through the foramen, which, it is needless to say, will produce irritation and loss of the tooth.

The insertion of a vulcanite plate could have no bad effect. It is not probable that necrosis of the alveolus existed in this case.

It is impossible to say what caused the loss in the second case. In all probability it was occasioned by the arsenic, applied in too large quantities.—ED.]

A REMARKABLE CASE.

BY J. H. MEASE, D. D. S.

Knowing the interest which the readers of the "TIMES" feel in whatever belongs to the "extraordinary," I feel sure that "a report" of a most singular case (near this place) will not be unwelcome.

A few miles from this place resides a Mr. P. W —, who is in many respects a natural curiosity, and well worthy the study of the scientist.

Mr. W. is about thirty-eight years of age. He never had teeth developed in his jaws, but his gums are very hard and resisting. Over the alveolar ridges they seem to be almost a callus, or bone foundation, enabling him to masticate the hardest substance most readily.

He is also destitute of the sense of taste and smell, and yet he is not without a choice as to food and drink, arising, I suppose, from certain

stomachic excitements produced by his favorite articles. He is a great lover of *beer* and *oysters*; but as to the latter, he knows no difference between a *bad* and a good one—eating the *putrid* as eagerly as the *fresh*.

He never perceives (and is, therefore, perfectly happy in the atmosphere of) offensive odors.

The skin over his entire body is dry and raspy, and utterly devoid of sebaceous glands and hair follicles, with the exception of a small portion of his face, where a few wiry hairs have straggled into daylight.

The sudoriparous glands and their ducts are also wanting, a circumstance which causes him much suffering during the summer season, more particularly when the weather is warm and the atmosphere dry. He, then, for the sake of comfort—and perhaps preservation of life itself—must cover himself with *wet clothing* and resort to the damp cellar. Here he *sleeps*, laying on the bare earth.

When the writer of this was but a boy this anomalous being was in his father's employ on the farm, and this peculiarity was often a terrible annoyance to myself and others, as we were obliged to relieve his agony from heat by running for water, and pouring bucket upon bucket over his writhing form. Well do I remember his “ah! you stayed; that water is not cold—you played!” when we happened to be a little longer than he thought we ought to be. On these occasions his symptoms were those of asphyxiation; otherwise he is apparently possessed of good health.

These conditions seem to be partly hereditary on the maternal side, since his mother had a brother with nearly similar defects, though the man himself is the only one out of a family of nineteen to whom these imperfections have been transmitted. He is also himself the father of seven healthy children in whom not a trace of his own misfortune is to be found.

Upon the whole, the case of Mr. W. may be ranked among the freaks of nature which defy explanation.

LEBANON, PA.

OSSIFICATION OF PULP.

BY M. C. SIM, D. D. S.

Inclosed you will find a tooth which I send you for its value as specimen, and because I have no means of determining, positively, its nature, which can probably only be learned by microscopic examination. It is probably an ossified pulp.

Mrs. T. G——, aged forty-two, asked me to “look at a tooth,” the superior right second molar. She said five years ago it had given her severe pain, and she consulted a dentist, who examined it. He decided the pain was produced by tartar, as there was no decay. He removed

the tartar and sent her away. Soon after there appeared a "gum boil" on her gum, between the first and second molar, and since then it had given her trouble about once every winter by swelling and discharging. It was now throbbing, and paining her severely. I examined it carefully, and described the condition in which I found the tooth and advised its extraction, although I could find no cause for death of the pulp, there being no caries present. She consented to the extraction, and I removed it. I found nothing unusual in its appearance. There was quite a large abscess covering the apices of all the roots, and extending to the junction of the roots with the neck. A small piece of alveolar process came away with the tooth; it was inclosed between the roots. I broke it with a small riveting hammer and found it in the condition you see it. She informed me she had had three other teeth extracted that had no "holes" in them, the dens sapientiæ of the same side, and the same teeth of the opposite side; also that her "wisdom" teeth were four years erupting, causing much trouble, necessitating the lancing of her gums several times.

DELAWARE, OHIO.

[The specimen sent is a very beautiful one. It is unusual to find secondary dentine so perfectly presented. The development is, unfortunately for us, by no means uncommon, and is a constant cause of perplexity in diagnosing odontalgia, and in the treatment of the canals in the roots.—ED.]

RUBBER DAM FOR DIFFICULT OPERATIONS.

BY R. T. HAMPTON, D. D. S.

All who have used rubber dam will doubtless agree as to its efficacy in difficult cases, especially in very wet mouths. But in many such, where it is most needed, I find it quite difficult, and often impossible, to apply and hold it in position during the operation. For example, we may have a cone-shaped wisdom tooth with a proximal cavity extending below the free margin of the gum. There will be no difficulty in carrying the dam down to the gum, but when the ligature is forced beyond that point, in order to reach the neck of the tooth, where it can be made fast, it will invariably pass between the tooth and the dam, leaving the latter just at the margin of the gum.

I find a very good way to overcome this difficulty is to prepare the dam in the usual way—punching one or more holes, as the case may require—thread a needle with floss silk, well twisted and waxed, put the dam on the stretch, making the hole assume about the size of the tooth to be filled, and with the needle lace the edge so as to form a draw-string of the ligature. (This may be carried a part or all the way around the

hole, as the necessities of the case may require.) Now, when the ligature is forced down under the margin of the gum in this way it will carry the dam with it. The ligature may then be carried around the tooth a second time, and thereby render it more secure.

I sometimes find it necessary to fill the cavity with Hill's stopping first, in order to carry the ligature and dam below the abrupt termination of the cavity at the cervical wall; and after it is tied securely, the temporary filling can be removed and the permanent one introduced. By careful manipulation the temporary filling can be "built out," so as to aid in "drawing on" the ligature.

By the foregoing method I have been able to protect and fill thoroughly cavities that could not possibly be filled in the ordinary way.

ROME, GA.

GALVANIC ACTION FROM AMALGAM FILLING.

BY J. A. LEEGAR, D. D. S.

In Vol. 9, No. 2, Dr. E. R. Pettit describes the injurious effect of amalgam in a case in practice. The reading of this induces me to report one in my own. I filled with amalgam, in the spring of 1871, the first right inferior molar on the grinding surface, for a Mr. S. S. J., of Dallas. The tooth was somewhat tender in excavating, and in a short time subsequently, he remarked that he had a battery of load-stone in his mouth. By passing an instrument over and near the surface he could feel it, and if the filling was touched it gave him a shock similar to the application of a pole of the battery. The tooth gave no uneasiness except in this way.

DALLAS, TEXAS.

THE EFFECTS OF HEAT upon animals have recently been the subject of a number of curious experiments made in France by Claude Bernard. Heat, it appears, when it reaches too high a degree, operates like poison, destroying feeling and motion, arresting the action of the heart and circulation, and thus necessarily producing death. The degree of heat which must not be exceeded is from 115 to 120 degrees Fahrenheit for cold-blooded animals, 129 to 131 degrees for mammalia, and 140 to 144 degrees for birds. In each separate case the maximum differs by a few degrees only from the normal temperature of the animals. The precise action of the heat upon the blood is thus described:

The blood of an animal killed by heat becomes black, and the oxygen it contains is rapidly transformed into carbonic acid, and finally disappears. This change, however, is not a true toxic action, but rather an excitement of the vital properties of the red particles. The black blood of a rabbit killed by heat, is still living, will absorb oxygen by contact with the air, and again will become ruddy. Between 167 and 190 degrees, however, the blood coagulates, loses its vital properties, and cannot again become red. Above a certain degree, heat kills the muscles without killing the blood. The chemical character of the poisoning of the muscles by heat has not been ascertained, and the phenomena accompanying the muscular rigidity and abolition of motion remain to be analyzed.—*Public Ledger*, October 26, 1871.

Leading Articles.

THE SIXTEENTH ANNUAL COMMENCEMENT OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The commencement was held at Musical Fund Hall, on Friday evening, March 1st, in the presence of a very large and appreciative audience.

At eight o'clock the Faculty, Trustees, Alumni, graduates and invited guests entered the hall, and took their seats on the platform. After a prayer by Rev. Wm. Blackwood, D. D., LL. D., the Dean, Prof. E. Wildman, called up the graduates in regular order. In the absence of the President of the Board of Trustees, the Degree of Doctor of Dental Surgery was conferred by Dr. W. W. Fouché, a member of the Board, on the following gentlemen:

GRADUATES, 1871-'72.

George W. Barnes,.....Pa.,....Treatment and Filling of Pulp Cavities.
 Francis L. Beecher,.....Min.,...Extracting Teeth.
 Truman W. Brophy,.....Ill.,....Diseases of Alveolar Processes and their Treatment.
 Jos. Rutledge Clements,....Wis.,...Salivary Calculus.
 Reuben Compton,.....N. Y.,...Alveolar Abscess.
 Hippolytus E. Daudinot, Cuba, Facial Neuralgia.
 Wm. Boudrias De Morat, N. Y., Human Teeth.
 A. Jameson Fuches, Jr.,...Mo.,...Diseases of the Teeth and Associated Parts.
 Alfred H. Henderson,.....N. B.,...Caries of Human Teeth.
 John H. Holliday,.....Geo.,...Diseases of the Teeth.
 William M. Huston,.....N. C.,...Salivary Calculus.
 Edwin C. Jones,.....S. C.,...Cups and Materials for Impressions of the Mouth.
 George H. Lathan,.....N. Y.,...Filling Teeth.
 Louis W. Lyon,.....Min.,...Operative Dentistry.
 Robert E. McReynolds, ...Geo.,...Dental Prosthesis.
 Juan J. Madriz,.....C. Am. Mechanical Dentistry.
 John A. Mayer,.....Pa.,....Practice of Dentistry and its Effects.
 John S. Moffitt,.....Ohio, Tartar and its Treatment.
 Andrew Patterson, Jr.,....Ohio, Alveolar Abscess.
 Daniel W. Plotner,.....Ohio, Digestion.
 George A. Richards,.....Ohio, Dental Caries.
 J. Logan Saxton,.....Pa.,....General Anæsthetics.
 Asahel W. Smith,.....Ky.,...Inflammation.
 Charles W. Stainton,.....N. Y., Anæsthetics.
 Edw. C. Thatcher, M. D.,...Pa.,...Tetanus.
 William Winterbottom, Pa.,...Salivary Calculus.

* Theodore F. Chupein,.....S. C.,...Salivary Calculus.

HONORARY DEGREES.

James W. White.

Charles Hamilton.

* Having been in practice since 1852, and complied with 2d Article on "Qualifications for Graduation."

MATRICULANTS—SIXTEENTH ANNUAL SESSION, 1871-'72.

NAME.	STATE.	PRECEPTORS.
Wm. B. Antrim, D. D. S.,	Pennsylvania,	
Cassan Edwin Babcock,	Illinois,	Dr. H. J. Smith.
George W. Barnes,	Pennsylvania,	Dr. J. D. White.
Frank A. Barrett,	District of Columbia,	Dr. W. H. Barrett.
Francis L. Beecher,	Minnesota,	Dr. S. A. Beecher.
Weirich Z. Bentz,	Pennsylvania,	Dr. Geo. S. Searight.
Ebenezer Bray, D. D. S.,	Minnesota,	
Truman W. Brophy,	Illinois,	Dr. J. O. Farnsworth.
Frank E. Brunet, D. D. S.,	Cuba,	
Lannes B. Bryan,	West Virginia,	Dr. John W. Moore.
Thomas W. Buckingham,	Pennsylvania,	Dr. T. L. Buckingham.
Jose M. Bustillo,	Cuba,	
Theodore F. Chupein,	South Carolina,	Dr. W. S. Monefeldt.
James Cleland,	Michigan,	Dr. H. Cowie.
Joseph Rutledge Clements,	Wisconsin,	Drs. Edwards & Fogg.
Carlos Clemencean,	Cuba,	Dr. Geo. T. Barker.
Reuben Compton,	New York,	Dr. J. R. Selover.
Edward H. Coates,	Philadelphia,	
Joseph Damare,	Louisiana,	Dr. T. L. Buckingham.
Hippolytus E. Daudinot,	Cuba,	Dr. O. L. De Lelande.
Charles B. Davies,	Ohio,	Dr. James Truman.
Wm. Boudrias De Morat,	New York,	Dr. E. T. Darby.
James H. Douglass,	Pennsylvania,	Dr. C. C. Thompson.
George W. Earnest,	Pennsylvania,	Dr. S. H. Guilford.
Eugene Ellinwood,	Massachusetts,	Dr. J. Hemenway.
Leonidas Espinoza,	Nicaragua,	Dr. E. R. Pettit.
Peter K. Filbert,	Pennsylvania,	Dr. H. B. Hamaker.
Liberato Flores,	Cuba,	Dr. E. R. Pettit.
A. Jameson Fuches, Jr.,	Missouri,	Dr. H. Judd.
George W. Greene,	Pennsylvania,	Dr. E. J. Greene.
Benicio Gueruero,	Nicaragua,	Dr. E. R. Pettit.
Thomas E. Hancocks,	Pennsylvania,	Dr. T. L. Buckingham.
Charles Homer Harvey,	Pennsylvania,	Dr. H. Ahl.
Alfred H. Henderson,	New Brunswick,	Dr. J. M. Barstow.
John H. Holliday,	Georgia,	Dr. L. F. Frink.
Ambrose W. Huckel,	Pennsylvania,	Dr. W. P. Henry.
Robert J. Husband,	Canada,	Dr. S. Zimmerman.
William M. Huston,	North Carolina,	Dr. W. R. Millard.
Edwin C. Jones,	South Carolina,	Dr. W. B. McKellar.
Edward P. Kremer,	Pennsylvania,	Dr. S. H. Guilford.
George H. Lathan,	New York,	Dr. H. A. Coe.
Evan B. Long,	Pennsylvania,	Dr. J. M. Barrett.
Louis W. Lyon,	Minnesota,	Dr. S. A. Beecher.
Robert E. McReynolds,	Georgia,	Dr. J. C. McReynolds.
Juan J. Madriz,	Costa Rica, C. A.,	Dr. Fry.
John Adam Mayer,	Pennsylvania,	Dr. J. H. Githens.
John S. Moffitt,	Ohio,	Dr. C. P. Coffee.
Lorin F. Owen,	Michigan,	Dr. E. G. Douglass.
Andrew Patterson, Jr.,	Ohio,	Dr. C. H. Scott.
Homer J. Patterson,	Pennsylvania,	Dr. N. L. Peck.
Joseph Pettit,	Pennsylvania,	Dr. E. R. Pettit.
Daniel W. Plotner,	Ohio,	Dr. M. C. Sim.
Horace T. Porter, M. D.,	District of Columbia,	Dr. J. J. Porter.
George A. Richards,	Ohio,	Dr. J. C. Whinery.
J. Logan Saxton,	Pennsylvania,	Dr. A. P. Tompkins.
Asahel W. Smith,	Kentucky,	Dr. S. H. Burgess.
Thomas H. Smith,	Ohio,	Dr. J. B. Beauman.

NAME.	STATE.	PRECEPTOR.
Charles W. Stainton,.....	New York,.....	Drs. Quigley & Daboll.
Eugene S. Talbot,.....	Illinois,.....	Dr. T. W. Brophy.
Edward C. Thatcher, M. D.,.....	Pennsylvania,.....	Dr. A. W. Smith.
Robert T. Vandevort,.....	Pennsylvania,.....	Dr. R. Vandevort.
James N. Warner,.....	North Carolina,.....	Dr. T. J. Andersen.
William Winterbottom,.....	Pennsylvania,.....	Dr. H. Winterbottom.

At the conclusion of this ceremony the valedictory to the graduating class was delivered by James Tyson, M. D., Professor of Physiology and Microscopic Anatomy.

The proceedings throughout the evening were enlivened by choice music from the Germania Orchestra.

The following reports of the Demonstrators exhibit the usual number of operations performed. A careful examination of these tables will indicate, to the most prejudiced, that colleges, as a means of practical instruction, cannot be excelled. It is to be hoped, however, that the necessity for this exhibit, as an argument, is passing away, and the time fast approaching when the great value of these schools will be appreciated as fully as is deserved.

DEMONSTRATORS' REPORT, SESSION 1871-'72.

OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2533
Gold Fillings,.....	1289
Tin Fillings,.....	537
Amalgam Fillings,.....	21
Hill's Stopping Fillings,.....	87
Oxy-Chloride of Zinc Fillings,.....	94
Removal of Superficial Caries,.....	39
Treatment of Pulp and Filling Pulp Cavities,.....	246
" Periodontitis,.....	47
" Alveolar Abscess,.....	63
" Inflammation of Gums,.....	33
" Partial Necrosis of Bone,.....	4
Correction of Irregularities,.....	2
Bleaching Teeth,.....	8
Removal of Salivary Calculi,.....	193
Pivot Teeth Inserted,.....	2
Extraction of Teeth and Roots,.....	2371
Total,.....	5036

ELIHU R. PETTIT, D. D. S., *Demonstrator.*

W. R. MILLARD, D. D. S., *Assistant Demonstrator.*

SURGICAL CLINIC OF PROF. MEARS.

Removal of Osteo-Sarcomatous Tumor of Lower Jaw,.....	1
Operations for Congenital Cleft Palate,.....	2
Operation for Fissure of the Soft Palate, the result of disease,.....	1
Operation for the Removal of Ranula,.....	1
Operation for the Removal of the Angle and greater portion of the Body and Ramus of Lower Jaw, for Necrosis,.....	1

MECHANICAL DEPARTMENT.

86 Patients were supplied with the following Artificial Dentures:

15 with Full Upper and Under Sets, number of Teeth,.....	420
46 " " " Sets, " "	644
1 " " Under Set, " "	14
24 " Partial Sets, " "	131
Mounted as follows:	
11 Full Upper and Lower Sets, on Silver Base.	
25 " " Sets, " "	
18 Partial Sets, " "	
4 Full Upper and Under Sets, on Hard Rubber Base.	
21 " " Sets, " "	
6 Partial Sets, " "	
1 Full Under Set, on Weston's Metal.	
Number of Gum Teeth,	1140
" Plain "	69
Whole number of Teeth mounted for patients,	1209

DEPOSITING CASES.

15 Full Upper Sets, on Metallic Base, number of Teeth,.....	210
1 " Under Set, " " " "	14
1 Partial Set, " " " "	8
9 Full Upper Sets, Metal Base Teeth attached by Rubber, No. of Teeth,.....	126
1 Partial Set, " " " " " "	10
1 Full Upper Set, on Continuous Gum, " "	14
Number of Gum Teeth,	381
" Plain "	1
Whole number of Teeth mounted on Depositing Cases,	382
Total number of Teeth mounted during Session,	1591

CHARLES E. EDWARDS, D. D. S., *Demonstrator*.

AMACEY B. ABELL, JR., D. D. S., *Assistant Demonstrator*.

The graduating class were complimented by numerous generous gifts of most beautiful bouquets, evidences of the interest felt in them by their lady friends. At conclusion, a benediction was offered, and the large audience gradually dispersed.

After these exercises were concluded, the Faculty, Alumni, class and invited guests proceeded to the College Building, to partake of the annual supper. After full justice had been done to the bountiful repast, addresses were made by Prof. Gross, Dr. W. A. Pancoast, Rev. Wm. Blackwood, Mr. Wells, of the *Bulletin*, Prof. Truman and others. It was an occasion full of interest—the presence and cordial sympathy of prominent members of the medical profession was peculiarly gratifying to those who have labored to elevate the dental profession.

It is a matter of regret that the epidemic prevailing in the city largely reduced the class of this session, several leaving for other colleges after they had arrived in the city. This, while it lessened the number of dentists, in nowise interfered with the operations of

the College, and it is gratifying to know that every student returned to his home unscathed.

The great need of colleges at the present time is the earnest co-operation of the profession generally. A marked improvement in this respect was noticed this year, and in proportion as this increases will more satisfactory results be manifested in these institutions.



ALUMNI OF PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The success of this, the second annual meeting of the Association, the proceedings of which will be found in another part of the journal, was unexpectedly great. The attendance was large, and among those present it was gratifying to notice so many of the prominent members of the profession, some of whom had come hundreds of miles, besides voluntarily devoting their time to the preparation of interesting and practical essays. The interest of those present was unflagging, and the material presented was sufficient to have occupied at least two days in its discussion.

The opinion seemed to be general that the meeting was scarcely less interesting, if at all so, than those of the American Dental Association, while it rivaled those of many of the State Associations. The only drawback was the shortness of the time, which was limited to one day.

Without doubt the influence of this meeting will extend far and wide, and be reflected upon the college in its increased success and prosperity. It is proposed that the next meeting shall continue for at least two days, which will scarcely allow sufficient time for the discussion of the subjects that may be brought before it, as it is expected that a still larger number will favor the Association with essays upon both the theory and practice of our specialty. The attendance, also, will doubtless be much larger, as the interest in the Association increases, and the alumni become better acquainted with its objects.

The *Reunion* took place at the College immediately after the Commencement Exercises. The chairs had been removed from the clinic room, and the room itself handsomely decorated for the occasion. The alumni and students were refreshed with an excellent repast, at which some of the most prominent men in the medical

profession were present as invited guests. The occasion was enlivened by speeches from some of these, and the assemblage separated at a late hour.

According to the constitution, the Secretary is required to keep a correct list, with the address, of the graduates of this College, and also of the (old) Philadelphia College of Dental Surgery, of which the Pennsylvania College is really a continuation. As many of the Alumni have changed their location since they graduated, it is impossible for him to carry this out without their co-operation. He therefore particularly requests that *all* the graduates, whether members of the Association or not, in or out of this city, will send him their address at once. This will diminish his labor much, and enable him to send notices of the annual meetings to the alumni, many more of whom would probably have been present if the notices of the last meeting had all been sent to the proper address, which could not be obtained in every case.

E. R. P.

THE CUMMINGS PATENT.

The Supreme Court of the United States, at Washington, having heard the argument in the case of Dr. B. E. Gardiner against the Cummings Patent, a decision cannot be long delayed.

The case was under the general management of John A. Foster, Esq., assisted by Samuel J. Glassey, Esq., and Orville Horwitz, Esq.

The general history of this matter must, by this time, be familiar to all readers of dental journals. It was necessary for Josiah Bacon & Co. to have this decision in advance of the expiration of the Goodyear patent, and hence the appeal of this case. At the eleventh hour the dentists were made aware of its existence on the calendar and of the near approach of a final hearing. Some of the profession in New York went earnestly to work, and by their efforts preliminary steps were taken to procure counsel. Subsequently the District of Columbia came to their aid, followed by Maryland, Pennsylvania and Missouri, and generous offers of assistance from all sections. An enthusiastic convention for the State of Pennsylvania assembled in Philadelphia on February 27th. The question was fully discussed and an executive committee appointed, to whom was given the work of immediately organizing

the State. But while very considerable energy has been exhibited since the appeal was made public, it is very evident that the time has been too limited to admit of extended effort. If, however, we can judge by information received from private sources the case was ably argued, and strong hopes are entertained of a favorable result, though we would not advise our readers to be too sanguine.

After reading the communication from Dr. W. A. Bronson, Secretary of the New York committee, in the February number of the *Dental Cosmos*, we expected that the counsel offered by Dr. S. S. White would have appeared and assisted in the argument. Omitting the first two paragraphs, we give this communication in full.

"The committee also desire, on behalf of the dentists, to acknowledge the liberality and the fraternal spirit with which Dr. S. S. White is aiding in the present exigency. While he carefully disclaims any indorsement of the Dr. B. Gardiner appeal, he has contributed generously to the first amount, which it was necessary to raise immediately, because he wishes to aid us in doing all that it is possible for us to do under the circumstances.

The brief period between the appointment of the committee and the calling of the case for trial (which is likely to be reached by February 15th,) made it impossible for societies at a distance to so mature their plans that they could employ additional counsel in time to permit them to study the case.

In this emergency Dr. S. S. White, having been informed that Hon. S. S. Fisher, who had studied the case thoroughly while working as chief counsel for the dentists of the West, has taken a retainer from Bacon to go on the shelf, and fearing that the case might be lost for want of proper watchfulness, and hoping to avoid the hearing if it should be found that it could not be properly presented, while utterly declining to influence any other person to subscribe to the maintenance of this defence, proposed to the committee to employ, at his own personal cost, counsel of eminent ability to be associated with Col. Foster.

This offer the committee thankfully accepted. Calling upon Col. Foster with Dr. W., he offered an eminent practitioner of Philadelphia as associate counsel, who was promptly and fully accepted as such by him.

W. A. BRONSON, *Sec. of Committee.*"

On inquiry, we learn that the gentleman selected by Dr. S. S. W. was subsequently rejected. Why this was done those most directly interested can best explain. This much, it seems to us, is due, not only to Dr. S. S. W., but to the profession generally. We have no doubt of the ability of Mr. Horwitz, but time was not

given him to study the case and prepare himself, as the learned gentleman selected from this city had already done. We, therefore, think the joint committee of New York and Washington assumed a grave responsibility in thus acting. The liberality of Dr. S. S. White, in offering counsel at his own expense, cannot be too highly commended, and we regret it was met in the manner it was.

The decision will probably be rendered early in April, and, if adverse, the profession may expect to do one of two things, either pay the annual tax for a series of years or abandon the rubber work altogether—the latter much the better way.

DONATIONS.

It is gratifying to find so many of our profession offering their specimens for the benefit and instruction of the many, instead of retaining them in their private offices. Since our last issue we have received the following valuable and interesting specimens, for which we tender the donors our thanks.

From Dr. G. Sites, of La Grange, Indiana, five teeth, one of which, a dens sapientiae, with the roots at a right angle to the axis of the crown; two incisors, with large deposits of salivary calculus; a molar the seat of exostosis; and lastly, and most interesting, a first molar and second bicuspid united—the bond of union of the enamel and of the dentine for about half the length of the root is perfect.

From Dr. L. D. Locy, of Flint, Michigan, a model of an under set, in which the first two permanent molars were erupted between the bicuspids. Also, two lower molars, with three fangs each; two inferior canines with two fangs each; also, two superior bicuspids, each having three well developed fangs.

From Mr. George R. Welding, of this city:

A superior dens sapientiae with four distinct roots. Extracted by Dr. S. H. Whitmer, of Newport, Pennsylvania.

A superior molar with necrosed alveolus attached to the roots. Extracted by Dr. A. N. Trueblood, of Paoli, Indiana.

An inferior molar with exostosed roots. Extracted by Dr. J. W. Whipple, of Buchanan, Virginia.

An inferior molar with three roots, the points of two of which

stand at almost a right angle to the axis of the tooth, while the third is still more curved, so much so as to form nearly a semi-circle. Extracted by Dr. J. R. Cressinger, of Sunbury, Pennsylvania.

An inferior canine with two curved roots. Extracted by Dr. T. J. Bull, of Warsaw, Illinois.

An inferior dens sapientiae, with the crown and a part of the roots imbedded in salivary calculus. Extracted by Dr. N. H. Egglestore, of ———, Michigan.

An inferior deciduous molar, having the crown of a permanent bicuspid clasped by its roots. Extracted by Dr. W. H. C. Abell, of Portage, Wisconsin.

A supernumerary tooth erupted upon the site from which a dens sapientiae was extracted six years since. Extracted from the mouth of a lady aged 36 years, by Dr. C. T. Stockwell, of Des Moines, Iowa.

An inferior molar with three large roots. Extracted by Dr. G. W. Adair, of Carlisle, Kentucky.

A very large deposition of salivary calculus, upon which tooth we cannot say, as no part of it is visible but the apex of the root. The mass measures one inch in the longest diameter, and in another direction seven-eighths of an inch. The donor states the patient had two other equally fine specimens in her mouth, which he failed to remove without fractures. Any comment upon the cleanly proclivities of the patient would be useless. Extracted by Dr. C. C. Burns, of Greensburg, Indiana.

A skull of a ground hog—*Arctomys monax*. We have several cases on record where, by the loss of an antagonising incisor in the rodentia, the remaining one, having no opposing force, has been elongated and penetrated the palatine arch. In this case a similar action has taken place from a dissimilar cause. In this specimen the superior incisors, instead of standing parallel to the median line of the palatine arch, as usual, are inclined in an angle of 30° to the left, so that it would be impossible for them to antagonize with the inferior incisors, and consequently they were elongated, the left incisor passing outward beyond the osseous tissue, while the right, in its elongation, came in contact with the alveolar ridge just in front of the left molars, and penetrated the bone to the extent of three-fourths of an inch, extending just outside of the sheath of the base of the left incisor; forming a

perfect loop. The inferior maxillary bone was lost, but the donor sends one of the incisors which measures three and a half inches; showing a great and unusual elongation from the want of a point of resistance, and that it must have protruded far out of the mouth. This rare and valuable specimen comes from Sardis, Mississippi, and from Mr. Adolph McCracken, student, who will please accept our special thanks.

STATE CONVENTION TO CONSIDER THE RUBBER QUESTION.

The call for a State Convention met with a more enthusiastic response than was to be expected. A large gathering convened at the Assembly Buildings on the morning of the 27th of February. The morning session and a portion of the afternoon was taken up in considering resolutions. An executive committee was finally appointed, to whom was delegated the entire charge of the subject for the State.

Delegates were present from Maryland, District of Columbia and Missouri.

CELLULOID BASE.

Much has been said and written for and against this substance as a base for artificial dentures. Some who have tried it condemn it as being utterly worthless, while others tell us they use it with perfect success. Now, there must be some cause for the great discrepancy in the result; and as both parties profess to have used the same material, this most probably arises from the methods in which it has been manipulated, for if its use has proved uniformly successful in any dentist's hands, the defects complained of by others cannot arise from any inherent property of the material.

We would suggest to those who have and those who have not used this base with success, to forward to us the *exact process* used in manipulating it, that we may make a record of it for the benefit of the dental profession at large.

We urge those who use oil in bringing the sections of the flask together, to state the exact temperature at which it is done, not to say hot or boiling oil; also to state whether the plaster was moist or thoroughly dried before immersing in oil, since, when the moist plaster is inserted in oil, the thermometer may indicate 300°, while the heat of the plaster will be little above 212°, owing to the rapid

evaporation which takes place as long as there is any water left in the plaster. We trust this request will meet with a response from many of our profession. Communications addressed to Dr. E. Wildman will receive attention in our next issue.

Among our correspondents, we find a hint from Dr. L. D. Loey that is so pertinent that we deem it worthy of consideration by those writers who wish their works to be ever ready for consultation. We quote his words:

“Here is a little suggestion to which we would like to call the attention of writers and publishers of dental books:—that all their works be issued in 8vo form. Wildman on Vulcanite, Arthur’s Adhesive Foil, Barker’s Instructions in Nitrous Oxide, &c., though works of few pages, are of the most desirable form for the book shelf. We have a couple of quartos that have to be tucked into drawers, and several 12mos, 16mos and 32mos, and they get stored in the pigeon holes, whereas, we would much prefer to find them in unbroken ranks on the same shelves with the old worthies, whose works stand nine inches in their stockings.”

EXCHANGES RECEIVED.

The American Journal of Dental Science, Baltimore, Md.
 The Dental Cosmos, Philadelphia, Pa.
 The Detroit Review of Medicine and Pharmacy, Detroit, Mich.
 The Indiana Journal of Medicine, Indianapolis, Ind.
 The Northwestern Medical and Surgical Journal, St. Paul, Minn.
 The Dental Register, Cincinnati, Ohio.
 The Canada Journal of Dental Science, Ontario and Quebec, Canada.
 Nashville Journal of Medicine and Surgery, Nashville, Tenn.
 Buffalo Medical and Surgical Journal, Buffalo, N. Y.
 Pacific Medical and Surgical Journal, San Francisco, Cal.
 The Missouri Dental Journal, Saint Louis, Mo.
 The Dental Advertiser, Buffalo, N. Y.
 Dental Office and Laboratory, Philadelphia, Pa.
 American Journal of Pharmacy, do
 Western Medical Advance and Progress of Pharmacy, Detroit, Mich.
 Good Health, Boston, Mass.
 The Doctor, a Monthly Review of British and Foreign Medical Practice and Literature, London, Eng.
 The Medical Cosmos, Philadelphia, Pa.
 The Medical Record, New York.
 Philadelphia Medical Times, Philadelphia, Pa.
 Medical Gazette, New York.
 Richmond and Louisville Medical Journal.
 National Medical Journal, Washington, D. C.
 Medical Investigator, Chicago.
 Deutsche Vierteljahrsschrift für Zahnheilkunde, Nürnberg.
 Correspondenz-Blatt für Zahnärzte, Berlin.
 Half-Yearly Compendium of Medical Science, Philadelphia.

Proceedings of Societies.

THE ASSOCIATION OF THE ALUMNI OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The second annual meeting of the Association of the Alumni of the Pennsylvania College of Dental Surgery convened in the College Building, March 1st, 1872, at ten o'clock. After the reading of the minutes of the last meeting, Professor Barker delivered the annual address.

The committee appointed to consider the expediency of making this Association a scientific one, reported in favor of such action, recommending also the appointment of committees on different scientific subjects, and that two days be devoted to the annual meeting of the Association.

The election of officers for the ensuing year resulted as follows :

President—DR. A. LAWRENCE, of Lowell, Massachusetts.

Vice President—Dr. E. T. Darby.

Recording Secretary—Dr. E. R. Pettit.

Corresponding Secretary—Dr. H. C. Register.

Executive Committee—Drs. T. L. Buckingham, James Truman and W. G. A. Bonwill, of Philadelphia ; Charles Moore, of Pottstown, Pa. ; and Charles S. Stockton, of Mount Holly, New Jersey.

After some routine business, and the adoption of the amendments to the Constitution, offered at the last meeting, an essay by Dr. J. S. Latimer, of New York, entitled " Suggestions," was read by the Secretary, in the absence of Dr. Latimer.

This was followed by an essay on the

TREATMENT OF CHILDREN'S TEETH.

BY C. E. FRANCIS, D. D. S., NEW YORK.

To secure a good healthy set of dentures to the adult, much depends on the care they receive in early life. To be sure, some people who have inherited iron-clad constitutions are fortunate enough to keep their teeth to a good old age ; but in these degenerate times such cases are the exception and not the general rule. Comparatively few of the descendants of Adam (particularly in this country) reach their thirtieth year with a full complement of perfect masticators, and many are they who lose half their teeth, or are absolutely toothless before that period. As by each one lost extra labor is imposed upon its fellows, where many are removed those that remain are overtaxed and soon worn out, or from alveolar absorption loosen and fall out. As a result, distorted countenances, constitutions broken down by dyspepsia, and dispositions soured and depressed may be expected ; all of which are dubious blessings to enjoy, and a miserable inheritance to the luckless children born of parents thus afflicted. Admitting, as we must, that a complete set of well behaved dentures is of greater value than a few straggling, rebellious ones, and that for health, comfort, personal appearance, &c., the former condition of these organs should be secured, we, as their acknowledged conservators, must bend our energies to accomplish this object.

It would seem to a casual observer that teeth in the mouths of young people are beset on every side by their dire enemy known as caries. Each congenital defect or imperfection in structure is a weak point for the intruder to attack. The acidulated secretions lodging in every nook and cranny are stealthily searching out all points of easy ingress, and where an advance is actually made the destruction is rapid, unless checkmated by the wisdom and manipulative skill of the dentist, who should be ever on the alert, fully prepared to baffle the encroachments of this mischievous foe.

Much attention should be directed to the preservation of the deciduous teeth. To the frequent inquiry, "Do you approve of filling children's teeth?" I give a most emphatically affirmative reply; and the unanswerable arguments in favor of so doing, when properly stated, cannot fail to convince and convert the most indifferent parent in regard to the benefit gained by this practice. The greatest difficulty I find is to get control of the patient's teeth, or the parent's ear, sufficiently early to insure the best results.

Believing, then, in the importance of retaining the deciduous teeth until their services are no longer needed, and they are forced out of their places by their larger and more substantial successors, our attention should be directed to the latter, with the view of securing to them positions where, if possible, they may permanently abide, to labor in a good cause, unmolested by torturing forceps, and strangers to the agonizing pangs of merciless odontalgia.

The sixth year molars are usually the first victims to disease, and we are often puzzled to determine just what to do with these teeth, and afford the greatest benefit to our patients. If well calcified and smooth in appearance, the patient blessed with a sound constitution, the dento-maxillary arches well defined, and teeth not crowded, we would at once say, "retain them by all means;" but, on the other hand, where they are poorly calcified, the enamel rough and pitted, the teeth badly crowded, with unmistakable evidence of decay all along their approximal faces, the acquired experience and careful observation of years have taught me that they cannot be classed as permanent teeth, and their room is much better than their presence.

Twenty-eight perfect teeth, that can be retained for a life-time with comparatively little care, are of greater value than thirty-two badly decayed or even gold-loaded ones, which require constant repairing so long as any vestige of their structure remains. The permanency of entire sets of tolerably good dentures are frequently sacrificed in a fruitless endeavor to retain four sickly, short-lived molars; or, perhaps, rather in adhering too stubbornly to a deeply-rooted dogma that it is error to extract a tooth under any circumstances. But in all the varied conditions in which we find these teeth, wisdom and reason should govern us, rather than a fixed rule to retain or extract indiscriminately, to whichever direction our bias may be turned; and deliberate, careful study of each individual case is often necessary to determine the proper course.

In examining the mouths of young patients, we sometimes find the teeth of a low toned character, showing evidences of some systemic disturbance while in their formative stage. The enamel may be rough and pitted, with deep sulci extending quite through to the dentine, or they may exhibit traces of disintegration on their bucco-cervical margins and approximal surfaces. Many

of us feel as if this class of teeth were doomed, and we almost despair of their salvation.

The most advisable course of treatment that suggests itself to my mind in such cases is, first, to render the rough places as smooth as possible. This may be accomplished by the use of chisels, files, sticks of Superior or Scotch stone, and powdered Arkansas or pumice stone. The burring engine may be made quite useful, both for trimming and polishing the rough surfaces of teeth. Wherever the fissures or pits extend entirely through the enamel, thus exposing the dentine, they should be cut or drilled out and filled. Then the patient needs *thorough* (and I emphasize that word) instruction as to the importance of taking care of these organs, otherwise our efforts to save them may prove futile. They should be taught *how* and *where* to brush their teeth, so as to be able to remove all extraneous matter from their surfaces; to use soluble dentrifices and alkaline washes; also, to employ phosphates, and to closely observe hygienic laws. If we neglect all this, (as I fear too many do,) we are unfaithful to the trust imposed upon us when such cases are given in our charge.

In filling children's teeth, either deciduous or permanent, much depends on a choice of material used for this purpose. Gold, tin foil, amalgam, oxychloride of zinc, and preparations of gutta-percha are called into requisition by different operators. I would rarely recommend gold where the walls of the cavities are soft or deficient in lime-salts, but would rather suggest Bevins' or Hill's stopping as temporary fillings; or, perhaps, occasionally tin foil for grinding surfaces. Amalgam and zinc fillings are unreliable in these cases, and I would hardly dare trust them. Tin foil is more readily adapted to this description of cavities than gold, while Bevins' stopping clings to the walls with a determined tenacity, such as no other material possesses. By occasionally watching cavities filled with this substance, and renewing the fillings when much worn away, you may rely upon their safety, which can hardly be said when filled with any other material.

Cases proving this are daily before my eyes, and many of our best operators will testify to the truth of my assertion. The longer I live, and the more closely I observe results, the more thoroughly convinced I am that it is unsafe practice to depend, as many do, wholly upon gold as a filling for young and poorly calcified teeth. Better fill them temporarily with plastic stopping; give them time to become more dense, and at the same time gain the advantage to be derived by operating for patients who, as the few years are added to their lives, are more easily managed, and for whom our operations may be more satisfactorily performed, with prospects of greater durability, and the better to be appreciated.

Having expressed myself regarding their teeth, permit me a few words about the children who need our care. From what I have stated it may be inferred that I believe in the "stitch in time" principle, and I also assent to the old time assertion that "an ounce of prevention is better than sixteen of cure." It is my fortune to have under my charge a great many juvenile patients. I have succeeded in impressing my views concerning their teeth so forcibly upon the minds of parents at such times as they themselves have sought my services, that

they send their little ones, often in flocks, for care and advice, and it takes much of my time to attend to them. I generally devote Saturdays and the latter part of nearly every afternoon exclusively to their needs. The most desirable object with me when children make their first visit is to gain their confidence, and this I rarely fail to do, however timid they naturally are. When confidence is once firmly established, it is surprising how easily they can be managed. A smile, a playful remark, a cheerful word, or the exhibition of a toy will have a marvelous effect if carried out in the right spirit. Children study us keenly when first brought into our presence, and it behooves us to create within their minds a favorable impression, for impressions then formed are lasting; indeed, their first idea of the dentist is hardly ever obliterated. I gain this step, and accomplish nothing more on their first visit, I feel as if I had made a good beginning. To be sure, our patience is at times put to a severe test, but it is bad policy to manifest symptoms of anger or impatience. If tempted to do so, better leave the room for awhile to conquer such feelings, or dismiss the patient at once, with as good grace as possible, offering a word of sympathy. The next time they come they will remember all this, and, trusting in our friendship, will give less trouble. You may say, "Does it pay to be thus bothered with children? Is it not more profitable to whip out their teeth at once, despite all resistance?" I believe it does pay in the "long run" to treat them kindly, and even accepting the annoyance, to consider their ultimate good. We must bear in mind the fact that children do not always remain children. As they advance in years their confidence increases, and as they are assured of your faithful endeavors to benefit them, they will ever think of you kindly, and lose no occasion to speak of you to others in words of generous praise.

On motion a half hour was devoted to the discussion of each paper presented. In opening the discussion upon Dr. Francis' paper,

Dr. TRUMAN said there was one important point mentioned in the essay just read to which he desired to call particular attention, namely, filling deciduous teeth with other substances than gold. He believed all cavities in the deciduous teeth should be filled with Hill's or Bevins' stopping, except those upon the masticating surfaces. The proximal cavities of the front teeth of children, eleven or twelve years of age, he always fills with Hill's stopping, allowing it to remain for two or three years before filling permanently, on account of the destruction of the pulp by thermal changes when they are filled with gold so early in life. In his opinion, at that age, Hill's stopping should always be adopted.

Dr. ROOP objected to Hill's stopping because it would last but a few months.

Dr. FRANCIS did not think favorably of Hill's stopping on account of its wearing out so soon. He preferred the white dentine, (gutta percha,) known also as Bevins' stopping. He had known it to last several years.

Dr. BONWILL stated that with him pure gutta percha had lasted several years.

Dr. MACDONALD remarked that persons think too much of individual cases

and not enough of general rules. There are a hundred different causes producing the difference in the number of failures or successes of different operators. He prefers plastic fillings for children's teeth, on account of lack of development even of the permanent teeth, excessive flow of saliva, and inability on the part of the patient to withstand the boring and beating necessary for a good gold filling. If he were a child, he would prefer to have his temporary teeth filled yearly with a plastic filling than to undergo the operation for a permanent filling.

Dr. BUTLER favored saving the deciduous teeth as long as possible. He thought it very important that the confidence of the child should be obtained. The dentist deserves a fee for the time spent in obtaining it as much as for anything else. He believed operations for children were profitable in the long run. He seldom uses gold in the temporary teeth or first permanent molars, but prefers Hill's stopping or tin. The latter he considered one of the best substances.

Dr. TOMPKINS asked Dr. Francis if he *invariably* fills the deciduous teeth with temporary fillings.

Dr. FRANCIS replied that he did not, especially on the grinding surface. He instanced a case in which a child had a small gold filling inserted in a tooth, and a Bevins' filling in a larger cavity of the corresponding tooth of the opposite side. When it became necessary to replace the gold filling, that cavity had become the larger, while the other filling was perfect, except slightly worn.

Dr. BARKER said we do not go back far enough. Why do children's teeth decay? Why are not all of them perfect? We must look upon it as retrograde metamorphosis, as in the permanent teeth. It is due to absence of proper food to build up the teeth. If we have patients whom we believe to be pregnant, we should always recommend them to take food containing the phosphates. While nursing, the mother or wet nurse should take the same kind of food, instead of ale, tea, &c., which make the worst kind of swill milk. When the child is old enough to eat solid food a similar line of diet should be established for it. One article of diet—hard, dry, toasted bread—has a conservative influence upon the teeth by stimulating action and developing the teeth and jaws. He approves of every effort to gain the confidence of the child, but we are required only to present the subject in the proper light to the parents, and throw the responsibility upon them. He thinks we will ultimately become edentulous, although it may require centuries to bring us to that condition.

Dr. GRIFFITH did not agree with Dr. Barker in reference to retrograde metamorphosis. He believed man was ascending, not descending.

Dr. STOCKTON said the question has been asked, Does it pay to treat children's teeth? He thought it did decidedly. Children are threatened by their parents that they will be sent to the dentist's to have a tooth out. When such children are sent to him he only puts cotton in the cavity at the first sitting, in order to gain the confidence of the child, and the next time they come they are not afraid. He attributes the good teeth which his children possess, entirely to the use of proper food. He uses in his family bread made without

yeast only. We must consider the constitution, temperament, &c., of the children in treating their teeth.

Dr. BONWILL commences to fill at two years of age, and prefers tin to all other substances, using it up to ten or twelve years of age. Next to tin he prefers gutta percha. He pays no attention to keeping the fillings dry.

Subject passed.

Dr. J. D. WINGATE, of Carbondale, Pa., read an essay upon "Progressive Dentistry," at the conclusion of which the meeting adjourned to three o'clock.

AFTERNOON SESSION.

Upon re-assembling the following essay was read on

HEREDITARY TRANSMISSION.

BY A. LAWRENCE, D. D. S., LOWELL, MASS.

Mr. President:—Having been honored with an invitation to present for your consideration an essay upon some subject connected with the specialty of dental surgery, I have chosen as the theme of a few hastily written words, that of Hereditary Transmission.

In a field so comprehensive in character, so diverse in expression, little can be accomplished within the limits of a single paper, except to take a general survey of the premises. I shall therefore only present the outlines of the subject, and leave to others more or less able than myself, the prerogative of pursuing the investigation as convenience or inclination may dictate.

The importance of the subject before us, in its bearing upon the well-being of the family of man—upon the entire animal as well as the vegetable world—is second to none; and yet little or no thought is bestowed upon it, and it is consequently neither appreciated nor fully understood. In fact, the whole matter, as a general thing, is either totally ignored, or not understood at all; and for the want of practical ideas and a consistent regard of the laws of life, a frightful number of physical and mental debilities and inefficiencies result, and are passed on from generation to generation.

What is implied in the words *hereditary transmission*? To transmit, in the common acceptance of the term, and according to our lexicographers, is the act of sending from one place or person to another; or the transmission of rights, titles or privileges from father to son, and from one generation to another; or the passage of a substance through a body, as of light through glass, &c.

Hereditary transmission, in the sense here intended, is the transmitting to offspring the physical characteristics—the good, bad or indifferent temperaments, mentalities, methods of thought and reasoning—the physiological, phrenological and physiognomical structures, in fact, the *tout ensemble* of the parents; and this by the operation of immutable laws, governing all generation throughout both the animal and vegetable kingdoms.

In order to truthfully comprehend that best estate and condition of body and mind necessary to constitute health, we should make ourselves acquainted with the laws and causes which produce and sustain it.

By health I mean the harmonious condition and operations of all the organs

which constitute the man. By disease I mean a discordant and pathological condition of the human organism.

Health is the natural condition of all life—to this end all the laws of nature conspire. For countless ages these laws have operated to produce the symmetrical and beautiful organization of man from the very elements of health; and the legitimate inference is, that generation, if always subjected to the same conditions absolutely, would produce unvarying results. But changing conditions of generation, with nutritive and psychological influences, have established the theory and fact of progressive development; otherwise man would have remained a Darwinian ape through all ages, past and future.

Only through the selection of the fairest and best seeds of their kind, under changing conditions and the influence of enlightened culture, have our grasses, grains, plants and fruits been brought to their present proximate perfection; and only by care in the selection of the most vigorous, beautiful, and otherwise desirable progenitors of their kind, have our domesticated animals been brought to their present standard of excellence—and this matter of transmission, so far as it relates to the “each-after-his-kind” fact, seems to be practically recognized among all farmers and stock-raisers throughout the globe.

The application of the principle in question enables the farmer to select, with almost absolute certainty, qualities in stock horses to insure fleetness in their offspring, and by the application of the same principle, to secure fattening properties in pigs and poultry, and the same or other qualities in his other stock.

But while he exhibits so much judgment in the care and management of his herds, and considers a round sum a fair equivalent for the transfer of the desirable qualities of a favorite horse, the same solicitude is seldom shown for his daughter, that her children may receive the inheritance of a robust constitution, a well balanced mind, good health and general soundness—sound teeth included.

If this law of transfer—this “like begets like” principle—applies in one department of life, then it applies in all, and is a matter worthy of our serious attention. The responsibilities of parents to children commence long before and last long after their generation.

Children are just what their parents make them: and those born but half made up, have too much reason to curse their progenitors for their transmitted curses in the shape of deformities, insanities and calamitous predispositions to scrofulous and other diseases. In the general non-conformity to physical laws the physician and the dentist find their chief financial interest, in fact, the necessity for their vocation; for a tendency to all manner of disease is generated by the numerous infractions and abuses prevalent in the community; and it is time to study and labor more to prevent disease than merely to cure it, whether it be of the physical, the moral, or the mental type.

Unfortunate and improper relative positions and conditions generate the evils and produce the inequalities so calamitous to human welfare and development. But these evils are relative, not absolute, and great contrast makes them appear monstrously hideous. The mingling of heterogeneous materials, discordant temperaments and dispositions, causes shocking physical imperfections and much unhappiness, together with vices of every degree of magnitude, which

no "tooth for tooth," or "eye for eye" theory and practice ever did, will, or can eradicate or remedy.

That the physical and mental constitutions, capacities and capabilities of mankind are innate, and not created by education, have a constitutional character aggregated and developed from parents, instead of being a dreary blank whereon education, circumstances and conditions alone stamp all the character and destiny of the individual, is clearly susceptible of demonstration.

If you will pass with me, in imagination, far back into the morning of time, and will examine the rudely outlined hieroglyphic representation of man, we shall find, by a comparison with the present, that he still retains, substantially, the same form and features, the same upright posture and general appearance, only manifesting most beautifully a higher development, that the specific difference between the past and the present is only the sum and result naturally following improved culture and surrounding circumstances. And we may safely infer that, governed by the same laws, the same characteristics, modified by varying conditions, will be perpetuated in man throughout a boundless eternity, or so long, at any rate, as the earth continues to afford him a subsistence.

This law of transfer arranges the human family into races, and characterizes every member thereof by well-marked peculiarities, both physical and mental, which must be hereditary.

Take, if you please, the African. Are not his color, tone of voice, mode of moving, manner of laughing, form of nose and mouth, color of eyes and other peculiarities, innate? Or were these indications of his lineage the result of laborious and pains-taking education? If so, there is no accounting for tastes. I am not quite prepared to endorse the doctrine of election, particularly in its application to the matter to which reference has just been made. I prefer to believe that our sable friends are *born* as they are, and without any special regard to their wishes in the matter.

Another marked instance of the living truth of the premises herein enunciated is to be found in the Jew—a Jew wherever found. He is too well-known to require any description, but his peculiarities of physiognomy, habits, modes of thought and pursuits, to a certain extent must, of course, be *hereditary*, from the fact that they have, as a general thing, intermarried from time immemorial. As of the cases just cited, so of all others, so that an ordinarily acute observer can readily determine the nationality or race of every individual by their features and other peculiarities. He knows a German, a Frenchman, an Englishman, a Turk or a Jew the moment he sees him by his national physiognomy—an inheritance more enduring than houses, lands or other earthly possessions.

An Indian with a curly head of hair, a Negro body and Caucasian head, Malay or Chinese features on the shoulders of the pure-blooded son of the forest, are never seen, for all *such* diversities are effectually interdicted by this law of transfer or transmission, while it brands the physiognomy and physical characteristics of every race most unmistakably on its front; and the same great law applies with equal force to families whose likenesses are perpetuated generation after generation. Not only are physiognomical peculiarities transmitted, but even the tone and volume of voice, carriage in walking and many

other and indescribable things, giving force to the somewhat ancient adage—"like father like son," and other expressions of similar import.

The accuracy and universality of this resemblance are such as often to lead communities to ascribe the paternity of children, whose fathers are not of the family circle and to the household known, to those whom the child most resembles in its looks and action, which resemblance is frequently sufficiently exact to warrant the conclusions. Innocent parties, however, have occasionally suffered in their reputation through prevailing ignorance of, or want of attention to, the laws of transmission.

Parents, either in fact or in prospect, should learn and remember that, in the language of a distinguished writer, "their children will be the very images of themselves, reflected in all their shades of feeling and phases of character, inheriting similar tastes, swayed by similar passions, governed by kindred sentiments, debased by the same vices, ennobled by like virtues, adorned by kindred charms and graces, and endowed with similar physical, moral and intellectual capabilities with themselves." The soundness of this quotation is everywhere too apparent to require argument or explanation.

We must remember that streams are seldom purer than the fountains whence they flow; hence, progeny must partake of the character of the source whence they are derived. For instance: if the seminal fluid is aggregated from every organ and tissue of the body, it is important that every organ and tissue should be in a healthy condition to insure healthy and vigorous fruits, physical and mental. If the lungs are weak and tuberculous they can only furnish material for new lungs of exactly the same type, and a very little observation will demonstrate that sound, strong teeth are indicative of a sound and robust ancestry, who have put this seal of identity upon their successors by such unmistakable indications.

Equally true is the general fact, that frail masticatory organs are due to the same cause, to an extent far greater than is generally supposed—modified, of course, somewhat, by the nutritive operations and other causes to which allusion has already been made, during and after gestation. Peculiarities in the arrangement, form and condition of the teeth themselves are also apparently hereditary.

I know a family, every member of which has the superior central incisors of unusual length—nearly three-sixteenths of an inch longer than the laterals; and I am informed by one of this family, himself an excellent and well-informed member of our profession, that this mark is common to all of his name; that his father and grandfather possessed the same peculiarity, and, for aught he knows, has been passed down as an heir-loom from the garden of Eden. I know another family of high social position, in whom the presence of large overlapping superior central incisors are the rule, and goes to make up their identity.

A practice in our specialty, extending over a period of thirty-two years, has brought to my notice many cases illustrative of the theory and fact under consideration, embracing the eruption, form, arrangement, decay, &c., of the teeth, and I have derived much satisfaction and aid in my professional career by a study of them; but the fear of extending my remarks beyond the limits of your patience forbids further reference to this part of my subject.

Cases illustrating the hereditary transmission of physical and mental

deformities and enormities, perfections, longevities, imbecilities, &c., might be presented almost without number; yet sufficient has been, or may be said to show quite conclusively that the laws to which I have referred determine largely the status of life, and that upon the infraction of such laws has grown the dire necessity for, and the consequent establishment of, medical and surgical science and art in all their departments and specialties.

Dr. BUCKINGHAM believed transmission one of the great causes of decay of the teeth. It is remarkable that the seeds of disease remain dormant until a certain age, and then are developed. It is the same in the teeth, but this should not deter from proper efforts for their preservation. He thought we should not encourage extracting the teeth, on account of the liability of the contraction of the jaw becoming hereditary. It is for this reason that some of the teeth—as the wisdom teeth—are imperfectly developed, or not developed at all. We may degenerate in both physical and mental properties. We have not good stock to develop children from. Among the savages only the healthy are preserved and raised. He believes children might be brought up to the standard of health by proper food, exercise, care, &c. He does not approve of destroying organs which may assist in preventing the deformities of the jaws.

Dr. BARKER said that among remarkable occurrences the effect of the mutilation of the organs is not the least so. For instance, circumcision has been practiced so long among the Jews that children are occasionally born with a condition very similar to it in appearance. We find a law of compensation—as other parts are lessened in extent, so also the maxillary bones are lessened, resulting in irregularities.

Dr. LAWRENCE wished to impress the fact that we may give some reason to those who ask us why the teeth decay, namely, that it is hereditary. This hereditary influence lies dormant until the conditions are favorable for its development. He is not prepared to say, that because a tooth is lost children will be born and grow up without having that particular tooth developed. The likelihood is that it would make no difference. The *tendency* to these things is transmitted. If the law apply in the transmission of mental qualities, it must also in the physical. It does not apply to *nævi materni*, blotches, &c. These are due to the impression upon the mother, as also the defect, resembling circumcision, referred to by Dr. Barker. It is altogether a psychological influence. In proof of this position, he instanced the case of a child in whom all of the superior and two of the inferior incisors were absent. The mother of this child, while pregnant with it, was present at the extraction of the corresponding teeth of a child, and the psychological effect produced the deformity.

Subject passed.

The following essay was then read:—

CHANGE NOT PROGRESS.

BY C. A. MARVIN, D. D. S., BROOKLYN, N. Y.

There is a restlessness in the human mind which is apt to lead to error, unless properly restrained and directed. Its exhibitions vary in degree as widely as in kind, and at times present to view strange phenomena, which seem difficult of comprehension.

The ultimate principle of this mental quality is doubtless a valuable one, and capable of being made productive of great good. Properly developed and trained, it becomes the motive power of progress and impels to increasing effort and greater achievements. Wisely educated, (I use the word in its strictly etymological sense) it seeks worthy paths wherein to exert itself, and appropriate measure in which to expend its force. Stimulating to steady pointed effort, it becomes the cause of important achievements, of an increased aggregate of useful accomplishments.

Man's duty is *to do*, to do that which is *good*, and to do it *well*.

The product of man's labor, which meets approval in the eyes of Him by whom man was created, is *good deeds done*. Not good deeds imagined, projected, even begun only, but *done*, actually performed. The completion of the work involves all these worthy sentiments, and proves their existence and exercise. A good deed *done* shows that it was thought of, that it was approved, that it was projected, that it was undertaken.

There is a wondrous complication of machinery in this mental mechanism of ours; and to keep it all in harmonious operation and make it effective for good, is a great work. This work is committed to us individually. When the machinery is in perfect adjustment, when we employ it to work out worthy objects of pursuit, then we are making what is called progress.

Now, progress may be good or bad. The word comes from two Latin words "pro" and "gradior," "to go forward." Hence, progress signifies "going forward." In whatever direction the face is set, advancement in that direction is progress. There may be progress in crime, progress in evil scheming, progress in the road to ruin, when these are the chosen paths.

Progress of this perverted character, however, is not that which I propose to consider in this essay. I mean that healthful advancement in the direction of good results which every rational creature is expected by his creator to make. It has the three requisites already specified, viz.: doing something, doing something valuable, and doing it well. In other words—active effort, wisdom in choosing objects of pursuit, intelligent, persevering application thereto.

The general principle here enunciated loses none of its force when applied to a specific class of individuals. Hence it bears upon us as specialists. And as the current of a river becomes swifter as its stream is narrowed by encroachments upon its banks, so any grand principle acts with mightier force when brought to bear upon any single line of pursuit. Acknowledging this rule, then, to which we are subject, let us enter thoughtfully upon the consideration of our topic, realizing the responsibility that rests upon us, and with honest purpose resolve, that whatever we evolve therefrom that is true, worthy and useful, shall meet our approval and receive our support. Truth is deserving of support wherever found; error never, by whomsoever stated.

If we would be promoters of progress our lives must be distinguished by the three requisites before named—and first, *active effort*. We are members of a large and growing profession—a profession which is acknowledged as a specialty of medicine, and which deals with human ills. We have the comfort and the health of human beings entrusted to our care. In our individual spheres we

represent the profession to which we belong. By us is it judged, nor can we divest ourselves of this responsibility. Here certainly is an array of motives sufficient to actuate us to effort. We cannot innocently be idle. Endowed with reason by our Maker, we cannot, without dishonoring Him, suffer that reason to lie unexerted, and become weakened and useless. Representing a profession, we cannot, without injustice to that profession, refuse to advance its interests and its reputation, hiding our light under a bushel, or, what is even worse, failing to produce any light. Success follows effort only. We cannot succeed, therefore, unless through exertion; hence, we defraud ourselves if we rest supinely on our backs. The contemplation of completed results of labor is very compensating to him who has struggled hard, and of this reward we cheat ourselves if we labor not. Lazy men are a stench in the nostrils of a community, and are regarded as useless carcasses floating on the surface of life, fit only to be buried out of sight.

Intelligence and culture should mark the members of a profession, and only by mental effort can that degree of cultivation be attained which will command respect. As the body grows strong by exercise, so the mind increases in power by use. Thinking is the result of mental action, and the habit of thinking strengthens the power of thought. It is not enough, however, to think. The creations of thought should be confirmed by actual execution. This brings us face to face with our second requisite—*wisdom in choosing objects of pursuit*. Aimless effort is valueless. Some object must be ever kept in view, some goal ever reached after, else nothing will be accomplished, else the actor is like a man who beats the air, expending his strength with no result. Such action is a waste of power. Intelligent men must have some aim; it is expected of them. The training through which they have passed has contemplated an aim in life. The inward longings, the outreachings of the soul within for heights of knowledge not yet attained, that restless desire for some undefined good, which every man must have felt at times, all urge him, if he would not be untrue to every principle of his nature, to seek some distinct, worthy object of life labor, to choose it at once and set about its pursuit. *Zeal* should mark that pursuit, *directness* distinguish it, *perseverance* be its vital breath. An object thus chosen, thus pursued, becomes more and more attractive in our eyes. It allures us with ever increasing influence to its possession. It takes on new beauties as we study it, and if a worthy object, comes not within the scope of the old proverb, "*Distance lends enchantment to the view,*" but it grows brighter as we near it.

In our profession there is one common end to which all probably aspire, viz: *eminence in his calling*. But dentistry is a complicated vocation. In it are many distinct departments, any one of which affords abundant scope for the highest ability, and all of which no one can equally master. So we find a choice made. One selects skill in manipulation as his specialty. It is well. With the utmost care he cultivates this special branch, and advances from one degree of excellence to a higher, till he gains an altitude that commands universal admiration. Another's ambition is to attain superiority in the treatment of diseases of the oral cavity and contiguous parts; study, examination, searching out of relations between parts, and the effect upon one, of disease in another,

upon one, of irritation in another, upon one, of treatment of another ; careful observation of symptoms indicative of constitutional disorder, and the correlation between it and local ailment, so that a course of treatment, constitutional or local, may be adopted best calculated to work a cure ; careful practice of well-chosen methods and close scrutiny of effects. All this kind of effort persevered in will bring the man at last to the fruition of his labors. Another may choose correction of irregularities. Another the insertion of artificial dentures. Another, perhaps, has higher aspirations, and aims to be a teacher. He digs and delves for principles, observes their operation in the human frame, searches out difficulties and how to solve them, studies clear and concise modes of stating truths, familiarizes himself with analogies by which to explain apparent mysteries, and so in the end he gains his desire.

Every dentist should have some given aim—*special aim*—for which to labor. Every man has his particular taste. One prefers one branch to another. Based upon his natural aptitude, as evinced by this preference, let his choice be made. And when made, let him adhere to it. Fickleness is fatal to progress. Let him set it up before his mind's eye and work toward it. How ?

This brings us to the third requisite, *intelligent persevering application*. Erratic effort is of no benefit to the actor or the world. A blow here and a blow there will never break down an obstruction ; a stride in this direction and a stride in that will never advance a man on his journey. A steady succession of blows delivered in a given place will eventually crumble the hardest obstacle ; a regular series of steps, persevered in, will accomplish the journey. So the forces of the human mind must be kept well under control and guided wisely. And by wise guidance it will not be understood that the mind is to be kept incessantly on the one track without interval or variation. This would soon wear it out. A brief range now and then into other fields, the taking in of other aliment, the contemplation and consideration of other subjects, these are necessary to the preservation of even balance, and to invigorate the mind, so that when it returns to its chosen track it resumes its work with new vigor and increased alacrity. Wise guidance will then keep it true to the mark, that there be no waste of power. Step by step, no second one taken till the first is sure ; fact after fact, none being recorded as such till proved beyond a question ; constant survey of the ground passed over, that it may be perceived what is next in order ; then energetic attempts to attain it, that the area of valuable discovery may be extended ; careful discrimination as to means employed, that false results may not follow the use of inappropriate means ; these are the methods ; and in all there should be preserved a perfect connection between the stages of progress, that the leading up of one through all its growth till it forms the basis from which the next rears itself, in its turn to become the foundation of the next, through all the series, shall be clearly discerned. This is progress.

The results of such labor will exalt our profession. Such application will better qualify its practitioners. Such competency as is sure to ensue will benefit our patients. Moreover, our ambition will be satisfied, the approval of our consciences gained, and a substantial reward secured. Could we stimulate

all those who call themselves dentists to pursue such a course, and pursue it consistently, undeviatingly, what strides of advancement would our profession take, and how soon should we see it towering to a height of excellence that would satisfy the most ambitious for its honor.

Thus far we have been considering progress and how to make it. Now, we have much at the present day which is called progress, but which is not progress. It is merely change. Novelty is very attractive, and it requires a well-balanced mind to discriminate between that which is merely novel, having no other virtue, and that which has in addition to novelty, merit. The disposition to change from old methods, old remedies to new ones, is very rife in our profession; and not only to change, but immediately to extol the new methods and new remedies as possessing exalted merits. And further, to decry at once the old ones as beneath notice, seems to be considered a bounden duty. Now this is childishness, nothing else. The babe who is pleased with the toy in its hand, seeing another with fresh paint, or of a different shape, drops the first and grasps the novelty, and by a little dexterous manipulation can be made to throw the latter away again and seize with eager hand the rejected one. So this desire or disposition to change leads men into saying and doing equally childish things. One man, for instance, has heard of some new remedy for the treatment of alveolar abscess. He employs it a few times, perhaps with fair success, then, with trumpet in hand, he repairs to the assemblies of his brethren and proclaims aloud, "a new discovery! great progress!" when, in all probability, there is no progress at all, merely a change.

Another conceives or hears of a new method of manipulation, and straightway heralds himself a pioneer, who has penetrated far into the hitherto undiscovered land, found new and valuable truth, and now graciously beckons on his distanced brethren to come and share in the progress he has made, when he may not have made one step of progress, but only made a change.

Illustrations need not be multiplied. They will occur in multitude to any one who reflects, for they exist all around us. It is important, for the interest of progress, that we should discriminate carefully, and not be deceived into accepting as a step of advancement what is only a step of change.

If a new method of manipulating gold, for instance, is brought forward, and we try it and are pleased with it, we cannot say that its introduction is progress until we apply a test. The test is at hand. Does the new method produce a better result? If not a better, does it produce an equally good result in less time, with less labor, less pain, more certainty? If so, then a point is gained, either in quality, time, labor, comfort or security, and progress is made. If no better result is obtained—if nothing is saved, in time, labor, or other particular, where is any gain? And if no gain, where is the progress? Clearly there is none. We have merely exchanged an old and familiar method for a new one, and oftentimes lose instead of gain. For if we attempt the new method, time and labor are required to make us familiar with it, and if it do no better for us than the one we deserted, that time and labor are lost.

There have been ebbings and flowings of this chase after novelties in all the past history of dentistry, but they have been more frequent of late, and in

some respects are quite amusing. In early days, smooth pointed instruments were used to pack gold. Then came the era of deep serrations, then of those more shallow, then of points merely file-cut, and now we are gravely told that a serrated point is unfit to pack gold; that the layers of metal can be more perfectly united by a smooth instrument than by any other. Observing these changes, we notice that the profession was carried by one leap from the old stand-point of smoothness to the extreme of serration, and that by reversed gradations it has returned, actually returned, to its starting point. Here is an ebb and a flow of conviction truly remarkable. So with heavy foil. From No. 2 to 6, in use in former times, and up to a recent date, the profession are lifted from their feet and carried to the extreme of 240 ere they are allowed again to touch *terra firma*. But having made the leap, they are returning again by degrees, and not slow degrees, to former preferences.

Capping nerves is no new thing. It has been practiced for years with measurable success only, while the opinion prevailed that there must be no encroachment upon the pulp's dwelling-place by any foreign substance. The delicate structure would not tolerate contact with any introduced material. If covered it must be untouched. Suddenly we are whirled off to a position where capping exposed, and even diseased pulps with an irritating compound brought directly in contact with them, is declared to be the method of all others never attended by a failure. Through the intervening space passed over in that flying leap, we see them drifting along back to the old alternative—extirpation.

These are illustrations of the readiness with which our profession chases after novelties, and the fluctuations of sentiment that are perceptible at different times, and they prove that change is not necessarily progress; that much, if not most of the changes thus suddenly sprung upon bewildered dentists are not progress at all.

In regard to each of these new theories last instanced, the test questions before named should be applied. Their searching application will prove whether there is progress, or merely novelty in them. Justice demands that this consideration proceed one step further. While genuine progress has been analyzed, and the meretricious claims of mere novelty considered, let it not be understood to be the object of this essay to condemn change. While change is not necessarily progress, *there can be no progress without change*. Hence, changes are by no means to be frowned upon. It is the claim of every change to be progress; that is deprecated. It is the hasty and wholesale adoption of every change as a step of progress, by the profession, that is condemned. This being understood, let change be encouraged. Let new methods be introduced, new materials brought forward, new instruments invented, new remedies discovered, to the end that advancement may be made, not by the mere introduction of the new things, but by their proof and test. If they stand that test, and having passed it leave a good result, show a real value, mark a point gained, then let them be welcomed as true claimants of progressive merit. By so doing shall changes be utilized, and novelty made the handmaid of advancement.

Unwillingness to depart from old paths, either to experiment or adopt what has been proved good, is unbecoming members of a scientific profession. It marks fossilization. It is fatal to growth. *Fear* to depart from such paths

lest the departure be termed change, and not advancement, is a morbid feeling, and the sooner it is broken up the better for him who indulges it. *Prejudice* against new things, simply because of their novelty, is not wise, for thus a candid examination of them cannot be made, and a valuable idea may be lost.

Here we have the two extremes ; novelties rushed after and embraced without a test of their merit, and all departures from present methods frowned upon and condemned. Between these lies the golden mean. Here is the key to progress :

Study, devise, introduce,
Consider, weigh, *prove*,

then accept.

Dentistry has not yet arrived at that height of perfection which we wish to see it attain. There are difficulties still to be overcome. There are successes yet to be accomplished. There are diseases that yet baffle the skill of the most eminent. The field in which to labor is wide, the encouragement to aggressive effort, ample. Past failures should stimulate to renewed attempt. Desirable ends, yet unreachd, should beckon us on to greater exertion. Experiment, trial, searching tests—these indicate the kind of exertion that every dentist should put forth. Let this be done and we shall behold, as the legitimate consequence, not spasmodic leaps over great spaces, to be subsequently retraced, but gradual, healthy, valuable progress.

Dr. TRUMAN expressed his gratification with the essay. It is time something should be said of change not being progress. In many respects the profession is to-day changing without progressing. It is too apt to follow individuals, like a flock of sheep follows its leader. Each should examine for himself. The use of smooth pluggers, etc., indicates a return to former times, not progress.

Dr. MARVIN said the reason he chose the subject was because there is special need to call attention to it for the honor of the profession. We are criticised sharply by the public. When new ideas are advanced to our patients they should not ask, "How long before you will throw this aside and take another?" In his paper he had referred to pluggers and heavy foil only as an illustration of the tendency to change in the profession. He inclined strongly to serrations, but preferred slight to deep ones. All the different sizes and kinds of serrations should have been tested at first to find out which is best.

Dr. WERT said his ambition in former years had been to mark out some leading characters in the profession to follow, but he finds those characters continually changing. He concluded it is better to have individuality. It has been said that it is a crime to extract a tooth, even the six year molar ; also, that gold fillings should be made as nearly solid as possible. Now, it is said to be necessary only to make the margins perfect. This he considered a change, not progress.

Dr. MACDONALD said some may be too careful and others too quick to reach after novelties. In his opinion the latter are likely to progress most ; he thought the six year molar should not be personalized more than any other teeth. All should be treated according to their condition, temperament and constitution of the patient, etc.

Subject passed.

Dr. WM. H. TRUEMAN exhibited an instrument used thirty years ago for condensing fillings, and advocated its reintroduction. It is used by being placed upon the (cylinder) filling, covered with some soft substance, and then allowing the patient to bite upon it, thus condensing the filling. He also called attention to condensing forceps with movable beaks, invented by Dr. David Roberts, an alumnus of the Pennsylvania College of Dental Surgery.

An essay was then read by Dr. WM. H. TRUEMAN on Manipulation of Gold Foil in Filling Teeth, which is omitted in this number for want of room.

This was followed by an essay upon the "Disreputable Practice of Dentistry," by Dr. GEO. W. ADAMS, D. D. S., Bristol, Pa.

Discussion of the last two essays was omitted on account of want of time. As each essay was read the thanks of the meeting were voted to the essayists, and a request was made for copies of the essays.

After some further business, not of general interest, the meeting adjourned.

ELIHU R. PETTIT, Recording Secretary,
1104 Arch Street, Philadelphia.

Selections.

ACTION OF HEAT ON PROTOPLASMIC LIFE.

BY F. GRACE-CALVERT, F. R. S.

Those investigators of germ-life who favor the theory of spontaneous generation have assumed that a temperature of 212° Fahr., or the boiling-point of the fluid which they experimented upon, was sufficient to destroy all protoplasmic life, and that the life they subsequently observed in these fluids was developed from non-living matter.

I therefore made several series of experiments, in the hope that they might throw some light on the subject.

The first series was made with a sugar solution, the second with an infusion of hay, the third with solution of gelatine, and the fourth with water that had been in contact with putrid-meat. The hay and putrid-meat solutions were taken because they had often been used by other investigators; sugar was employed, being a well-defined organic compound free from nitrogen, which can easily be obtained in a state of purity; and gelatine was used as a nitrogenized body which can be obtained pure and is not coagulated by heat.

To carry out the experiments I prepared a series of small tubes made of very thick and well annealed glass, each tube about four centimetres in length, and having a bore of five millimetres. The fluid to be operated upon was introduced into them, and left exposed to the atmosphere for sufficient length of time for germ-life to be largely developed. Each tube was then hermetically sealed and wrapped in wire gauze, to prevent any accident to the operator in case of the bursting of any of the tubes. They were then placed in an oil-bath, and gradually heated to the required temperature, at which they were maintained for half an hour.

Sugar Solution.—A solution of sugar was prepared by dissolving 1 part of sugar in ten parts of water. This solution was made with common water, and exposed all night to the atmosphere, so that life might impregnate it. The fluid was prepared on the 1st of November, 1870, introduced into tubes on the 2d, and allowed to remain five days. On the 7th of November twelve tubes were kept without being heated, twelve were heated to 200° F., twelve to 300° F., and 12 to 400° F.

The contents of the tubes were microscopically examined on the 1st of December, twenty-four days after heating.

Sugar solution not heated.—There were about 30 animalcules under each field of the microscope, principally *small black vibrios*, 2 or 3 microzymes swimming slowly about, 3 or 4 *ordinary swimming vibrios*, and a few bacteria.

Heated for half an hour at 212° F.—A great portion of the life had disappeared, no animalcules were swimming; still this temperature had not completely destroyed life; 4 or 5 *small black vibrios* were observed moving energetically to and fro; 2 or 3 *ordinary vibrios* were also observed moving energetically in the same position of the field, that is, without swimming about.

Heated for half an hour at 300° F.—The sugar was slightly charred, but the life was not entirely destroyed, as 1 or 2 *ordinary vibrios* and 1 or 2 *small black vibrios* were observed in motion under the field of the microscope.

Heated for half an hour at 400° F.—The sugar was almost entirely decomposed; no trace of life was observed.

Heated for half an hour at 500° F.—No life observed.

Remarks.—The black vibrios here referred to are far more opaque than the other varieties of vibrios, and are the most important of all, as I have found them to resist not only very high temperatures, but all chemical solutions. I shall, in my paper on putrefaction and the action of antiseptics, describe the various vibrios and give drawings of them.

Hay Infusion.—An infusion of hay was made by macerating it in common water for one hour, then filtering the liquor, and leaving it exposed to the atmosphere all night, when it was sealed in the small tubes, twelve of which were used for each experiment. The infusion was made on the 4th of November, sealed in tubes on the 5th, and heated on the 7th.

The results were examined on the 1st of December, 1870, twenty-four days after being heated.

Hay infusion not heated.—Fungous matter was observed growing on the surface of the fluids in two of the tubes. On subjecting the contents of some of the tubes to examination, from 20 to 25 animalcules were observed under each field of the microscope. This kind of life resembled small dots moving energetically to and fro; 1 or 2 *ordinary vibrios* were also present.

Heated for half an hour at 212° F.—No fungous matter was noticed on the surface in any of the tubes. A few small black vibrios present in the original solution were also present in this.

Heated for half an hour at 300° F.—No fungous matter present, but some of the small black vibrios were still present, although in less numbers.

Heated for half an hour at 400° F.—No fungous matter observed. The fluid was filled with irregular masses of coagulated matter, and life had disappeared.

Heated for half an hour at 500° F.—No life present.

Gelatine Solution.—A solution of gelatine, prepared with such strength that it remained liquid on cooling, was exposed for twenty-four hours to the atmosphere. It was then introduced into the small tubes, and the tubes sealed. The solution was made on the 4th of November, the tubes sealed on the 5th, and subjected to the different temperatures on the 7th.

The fluids were examined on the 1st of December, 1870, twenty-four days after being heated.

Gelatine solution not heated.—There were seven or eight animalcules under each field, five or six of which were quite different to anything observed in the other fluids. They had long thin bodies, swimming with a peristaltic motion. One or two *ordinary swimming vibrios* were also present; but the small black vibrios were absent.

Gelatine solution heated for half an hour at 100° F.—Life seemed to have only slightly decreased, and none of the animalcules were swimming. The peculiar animalcule mentioned in the previous paragraph appeared to retain still its peristaltic motion, but not sufficient power to move across the field; a few *ordinary vibrios* being also observed moving to and fro.

Heated for half an hour at 212° F.—A very decided diminution in the quantity of life present was noticeable.

Heated for half an hour at 300° F.—No life present.

Heated for half an hour at 400° F.—No life present.

Putrid Meat Fluid.—Water was placed in an open vessel, and a piece of meat suspended in it until it became putrid and contaminated with myriads of animalcules. This fluid was placed in the usual tubes, which were sealed on the 7th of November, and heated on the same day.

The contents of the tubes were subjected to examination on the 1st of December, or twenty-four days after having been heated.

Not Heated.—A large quantity of life was present, namely, microzyma and several distinct species of vibrios, among which were a number of the small black ones frequently mentioned.

Heated for half an hour at 100° F.—This temperature had but slightly affected the life present, the animalcules being as numerous as in the liquid not heated, and moving as usual. However, one species of very long vibrios appeared to be considerably affected, as they were much more languid in their movements.

Heated for half an hour at 212° F.—This liquor differed from all the others in being turbid and coagulated. Life was still present; and although heat had deprived the animalcules of the power of locomotion, still they retained a sufficient amount of vital force to place it beyond a doubt that life was not destroyed.

Heated for half an hour at 300° F.—The liquid was quite clear, the albumen (which is coagulated at 200°) appearing to be redissolved. A large quantity of the life in the fluid was destroyed, but some vibrios still remained, the small black ones being the most numerous.

Heated for half an hour at 400° F.—All life had disappeared.

Heated for half an hour at 500° F.—All life had disappeared.

The results recorded above show that protoplasmic life is but slightly affected by a temperature of 212° F., and that, even at a temperature of 300° F., it is not entirely destroyed, excepting in the case of gelatine. In all the other fluids a temperature of 400° F., is necessary to completely destroy the life. These experiments, therefore, clearly show that the life found by previous experimenters in fluids which have been submitted to heat was not due to heterogenesis, but to life which had remained in the fluids, as I have seen no experiment reported where the temperature to which the fluids were exposed exceeded 300° F.*

I am the more justified in making this statement, as I have repeatedly examined the contents of tubes which had been submitted to a temperature of 400° F., both immediately after cooling and at all periods up to thirty days, and was unable in any instance to detect the slightest trace of life.

This important result corroborates those recorded in my previous paper, and proves that the spontaneous-generation theory is not yet by any means established.

It occurred to me that it might be interesting to examine the influence on pure albumen of the putrid meat fluids that had been heated, and note whether they still possessed the property of propagating life. A solution was prepared by mixing the albumen of a new-laid egg with pure distilled water free from life (prepared as described in another paper.) Equal volumes of this solution were placed in six small test-tubes, which had been cleaned with hot vitriol and well washed with pure water. To one tube two drops were added of the putrid-meat solution that had been heated to 100° F., to a second two drops of that heated to 212° F., to a third two drops of that heated to 300° F., to a fourth an equal bulk of fluid heated to 400° F., and to a fifth the same quantity heated at 500° F. In the sixth the albuminous solution, without anything added, was kept for comparison.

The tubes were sealed and kept from the 1st of February to the 9th.

* It is with pleasure that I find these experiments confirm the suggestion of Dr. Beale, in his work entitled "Disease-Germs, their supposed Origin," p. 50 (which I read a few weeks ago), that "living forms might live though exposed, under certain conditions, to a temperature of 350° F."

RESULTS OF EXAMINATION.

Albumen Solution.—In each drop two or three small black vibrios, moving to and fro.

Albumen Solution, with Putrid-Meat Liquor, heated to 100° F.—Abundance of life.

Albumen Solution, with Putrid-Meat Liquor, heated to 212° F.—Abundance of life.

Albumen Solution, with Putrid-Meat Liquor, heated to 300° F.—Much less life than in the two fluids previously examined.

Albumen Solution, with Putrid-Meat Liquor, heated to 400° F.—In each drop two or three small black vibrios, moving to and fro.

Albumen Solution, with Putrid-Meat Liquor, heated to 500° F.—In each drop two or three small black vibrios, moving to and fro.

These results clearly show that, at the temperatures of 100°, 212°, and 300° F., life and its germs had not been destroyed, whilst at 400° F. they had; for the results of the examination were in this case exactly identical with those of the albumen solution itself; and the life found was doubtless introduced in the preparation of the solution, and was not due to any life having remained in the fluids that had been heated.

Although perfectly aware of the interesting researches of Professor Melsens, proving that the most intense cold does not destroy the active power of vaccine lymph, still I thought it desirable to ascertain the effect of a temperature of 15° F. on well developed germ-life, similar to that which had been subjected to the action of heat.

Some putrid-meat liquor, therefore, containing a large quantity of microzyma and vibrios, was subjected for twenty-four hours to the influence of a temperature ranging between the freezing-point of water and 17° below that point, when the ice was melted and the liquor examined. The animalcules retained their vitality, but appeared very languid, and their power of locomotion was greatly decreased.

Two hours after melting the ice, the liquor was again examined, when the animalcules appeared to be as energetic as before.—*From The Druggists' Circular and Chemical Gazette*, February, 1872.

CASE OF SALIVARY OR PAROTID FISTULA.

BY T. CURTIS SMITH, M. D., OF MIDDLEPORT, OHIO.

August 9, 1871, I was called to a daughter of Mr. T., of this place, and was told that when eighteen months old, a large abscess had formed at the site of the parotid gland, and involved its structure. The parents treated this with poultices. When pus appeared near the integument, the father "picked it open with the point of a knife." She soon recovered from the abscess, but was left with a salivary fistula at the point where the puncture was made. This continued to discharge saliva in spite of all the treatment that had been adopted prior to the time I saw her. The site of the fistula was opposite the posterior margin of the gland, and about seven lines posterior to the neck of the inferior maxilla.

For the whole period, seven and a half years, saliva had flowed continually from the fistulous opening, and, during the mastication of food, would run down the neck in quantity sufficient to wet all the garments at the upper part of the chest; or if the head was inclined forward while eating, it would drip rapidly off at the chin. The skin below the fistula was excoriated by the discharge. She was slightly anæmic, and of bad color of skin, but in other respects healthy.

I examined the duct of Steno with a fine probe, and found it pervious and healthy throughout its entire length, the probe passing readily back to the gland. I then introduced a very fine probe into the fistula, which was about thirteen lines in depth, the point passing obliquely inward and anteriorly. The natural channel, Steno's duct, being open, there could be no objection to clos-

ing the fistulous channel by granulation, and without serious operative procedure, should we find it possible to do so. At first I concluded to try mild stimulating applications introduced to the bottom of the fistula, for the purpose of securing granulation. Some cases of salivary fistula have been permanently cured by the simple introduction of the probe into the channel for exploration, the procedure causing sufficient granulation to close the fistula. I was not so fortunate with my case.

The mild applications, after a fair trial, failed to accomplish the desired result. I then dilated the integumentary portion of the fistula, inserted a small silver canula, and injected a solution of argenti nitrat. gr. xx., aquæ destillatæ mxx, into the abnormal channel. This caused severe pain for several hours, and was followed by active inflammation and free suppuration, pus and saliva flowing freely from the fistula. This continued for three weeks, but gradually diminished after the first three days. During all of this time a compress was bound firmly over the gland and fistula. At the end of this period inflammation had ceased, the swelling had disappeared, and the opening continued to discharge saliva in very small quantities *during mastication only*.

On introducing a fine probe at this time, the fistula was found to be but three lines in depth. I then repeated the injection as above, which caused slight inflammation and the flow of a few drops of healthy pus, after which the fistula closed firmly, leaving a small pit at its former site. The erythematous condition of the surrounding skin rapidly disappeared, and the girl is now well, of much healthier hue of skin, more vivacious than formerly, and not a little happy for the relief afforded from a troublesome and disfiguring malady.

I think that to simply introduce to the bottom of the fistula a fine probe, which had been previously coated with nitrate of silver, would be as effectual a procedure as the methods adopted in the above case.

Reports of cases of fistula similarly located are quite rare, and such cases are, probably, by no means numerous.—*The American Journal of the Medical Sciences*, January, 1872.

A TEST FOR PUS.

DR. DAY, of Australia, has made some interesting observations on pus, which we quote from the *London Medical Times and Gazette* :—

"In 1868," he observes, "I had the good fortune to discover a very delicate test for pus, and have since been in the almost daily habit of applying it, in conjunction with other tests, as aids to diagnosis. In this way I have learned some very interesting facts regarding the properties of pus. For instance, I have found that healthy pus, when dried, becomes chemically inactive; although, when moistened with water, it again resumes its chemical activity; also that pus derived from persons suffering from diseases allied to erysipelas, possesses unusual activity—more than that from healthy persons—and which it is capable of retaining for years.

"On this paper are two spots of pus, which had been allowed to dry by exposure to the air. To one has been added the pus-test alone, with, as you may see, a negative result, dry pus being devoid of chemical activity. To the other a drop of water is added, and then a drop or two of the pus-test, with the result which always follows the application of this test to most pus—namely, a bright-blue reaction.

"I mentioned just now that pus secreted by persons suffering from diseases allied to erysipelas is more active in its chemical properties than healthy pus. On this piece of glass is some pus taken from a large carbuncle on the neck of an elderly gentleman two years and three months ago. He was suffering from symptoms of blood-poisoning at the time. This pus, as you will see, although it has been freely exposed to the air during the whole time, and sometimes to great heat, still retains its power of acting chemically on the pus-test; and it does so even when dry, thus showing that it possesses greater chemical activity than ordinary pus.

"You will perceive that, in the explanation I have attempted regarding the influence of moist and dry air over the propagation of erysipelas and its allied diseases, I have assumed that when the chemical activity of pus is suspended, its power to act as a poison on the system is also suspended.

"I will trespass on your time by bringing one other experiment under your notice, as it may help to explain the *modus operandi* of Prof. Lister's antiseptic treatment of wounds.

"I have found that carbolic acid possesses the property of entirely and permanently destroying the chemical activity of pus, whether derived from healthy or unhealthy persons. On this paper is some pus which had been moistened with water to give it chemical activity. A few drops of watery solution of carbolic acid was then poured over it, and after the lapse of a quarter of an hour, the pus-test was applied, with, as you may see, a perfectly negative result."

Dr. Day's pus test is so simple in the mode of appliance, and apparently so certain in its revelations, that we have little doubt it will soon come into daily use as an aid to diagnosis. He prepares his test-fluid by exposing a saturated alcoholic solution of guaiacum to the air until it has absorbed a sufficient quantity of oxygen to give it the property of turning green when placed in contact with iodide of potassium. On moistening the most minute quantity of pus with water, and pouring a drop or two of the test-fluid over it, a clear blue color is produced.—*Druggists' Circular*.

NOTE ON PURE CARBOLIC ACID.

BY PROFESSOR CHURCH, M. A.

Since 1856 I have occupied myself a good deal with experiments as to the practical hygienic applications of carbolic acid, particularly as to its use in dentistry and in throat affections, and also as regards its employment as a disinfectant. The rank of carbolic acid as a most valuable contribution from chemistry to medicine is so well as-ured that it is unnecessary to insist upon this point here. Yet there is an objection urged against this substance, which has some apparent force, simply because the best preparations of commerce are so seldom free from a gas-like or naphthalic odor, which, though entirely foreign to carbolic acid itself, has condemned its use in some quarters. About 11 years ago, in preparing pure carbolic acid for the use of a surgeon-dentist to whom I introduced it, I adopted a plan which I shortly afterwards described before the Odontological Society, and to which I have been lately asked to give greater publicity. My plan, which is very simple, is as follows:—

One pound of the best carbolic acid of commerce (I use Calvert's white crystallized acid) is poured into 20 pounds of cold distilled water, taking care not to permit the *whole* of the acid to enter into solution. With a good sample, if after shaking repeatedly at intervals, between two and three ounces of the acid remain at the bottom of the vessel used, this will be a sufficient residue to hold and contain all the impurities. With bad samples, less water must be used or more acid. The aqueous solution should be syphoned off, and filtered, if necessary, through Swedish paper till perfectly clear; it is then placed in a tall cylinder, and pure powdered common salt added with constant agitation till it no longer dissolves. On standing, the greater part of the carbolic acid will be found floating as a yellow oily layer on the top of the saline liquor, and merely requires to be removed by a syphon or pipette to be ready for use. As it contains 5 per cent. or more of water, it does not generally crystallize, but it may be made to do so by removing it to a retort, and distilling it from a little lime. The portion collected up to 185° C. or thereabouts, has at ordinary temperatures scarcely any odor, save a faint one resembling that of geranium leaves; and I have taken advantage of this curious resemblance still further to mask the slight smell proper to absolutely pure carbolic acid by the addition to it of four drops per fluid ounce of the French oil of geranium. This addition has the further advantage of liquefying the pure crystallized product.

The carbolic purified as above has been so highly appreciated by those professional and private persons to whom I have distributed samples, and who

were dissatisfied with the purest commercial samples, that I have thought it best to publish my simple plan, for which, however, I claim no originality. It involves, I know, considerable loss of material, but the saline liquor remaining may be distilled and thus made to yield up a second portion of pure carbolic acid, and it will be found a very pleasant and effective domestic disinfectant and deodoriser.

When dissolved in 230 parts of water and used as a gargle, or in 25 parts for painting the throat, or in 50 parts for a carbolic spray, the pure acid is rarely, if ever, objected to even by the most fastidious person. Of course it may be readily mingled with olive or other oil (1 : 25,) or with glycerine, for dressing cuts and sores, and when introduced into the little air-purifier invented by me and noticed in your columns some months past, diffuses wholesome and inoffensive vapor in any place where there are disagreeable effluvia of vegetable or animal origin.—*American Journal of Pharmacy*, December, 1871, from *Chemical News* October 13, 1871.

THYMOL.

DR. TOMES, in the *British Journal of Dental Science*, gives the following account of Thymol:—Thymol is the “Camphor” of oil of thyme: it is a body solid at ordinary temperatures and soluble only to a slight extent in water, but readily soluble in alcohol, from which it is not precipitated by dilution with water; it is also soluble in ether and in glycerin, but its solution in glycerin is precipitated by the addition of water.

Then as to its chemical relations, I have already mentioned that creasote is an essential oil, which must not be confounded with phenol (carbolic acid,) which is not itself an essential oil; but it is worthy of note that thymol is a member of the same homologous series as phenol—a fact which would lead us to the inference that its properties would probably be in some degree similar, though it is separated from phenol by an interval which would render it almost certain to present also considerable differences.

We have also seen that it is a body of similar chemical character with camphor, which has been long employed for dental purposes.

To sum up the conclusions to which we are led by theoretical considerations, we find that thymol is a part of an essential oil, a class of bodies which have perhaps fallen into undue neglect as remedial agents; that it is somewhat related to both creasote and carbolic acid, though removed from them sufficiently to present distinct differences in its action, and that we may expect it to possess both antiseptic and disinfectant properties.

I have not had it in use for a sufficient length of time to speak with certainty as to its value as compared with carbolic acid; as a rule, patients rather like its taste, and it is a capital sedative when applied to an exposed aching pulp; I am inclined to think that in this respect it is at least equal if not superior to carbolic acid.

This sedative or anæsthetic power is shared by several of the essential oils. Dr. Alfred Wright states in the pages of the *Lancet* that oil of peppermint is largely used by the Chinese as a topical application in facial neuralgia, and that he has found it of marked value in allaying the pain and tenderness of gout.

I have of late used nothing but thymol as a dressing in the fangs of teeth of which the nerve has died or has been destroyed; on removing the wool or floss-silk on which it has been applied, even after two months, the odor of thymol has been as strong as when it was put in, though the wool was blackened by discharges; and I am inclined to think that its effect is more lasting than that of carbolic acid.

But it takes a very long time to ascertain with certainty the practical value of a remedy; and it cannot be conclusively ascertained until it has been used by a large number of practitioners. My object in now writing on this subject is to show that, as far as theoretical considerations can tell us, it may probably turn out valuable, and at all events deserves a trial at every one's hand.—*Dental Cosmos*, for March, 1872.

DR. SANDERSON'S EXPERIMENTS ON THE GROWTH OF MICROZYMES IN WATER.

Microzymes or Bacteria are other names for our old and familiar friends Vibriones, concerning the presence of which in potable water, in the renal excretion, and in the rice-water discharges of cholera, we many years ago treated in several publications relating to those subjects. Dr. Burden Sanderson, by his recent experiments and observations, has invested these minute organisms with a new interest and importance, as we now propose to make apparent.

Microzymes, in their fully-formed state, consist of infinitely minute bodies, of an elongated or staff-like form, and with rounded and slightly enlarged ends. They appear to proceed from minute particles of matter imbedded in a transparent base or substance, often of a spheroidal form; they are colored brown by iodine and absorb oxygen, which is necessary to their existence, and give out carbonic acid. They contain nitrogen in their composition, and are believed by most observers, on account of certain peculiarities of their motions, as well as the products of their respiration, to be of an animal nature; but this point has not yet been definitely settled. They occur in liquids or moist air, but not dry air; in the first instance in the jelly-like basis, which also is presumed to be of an albuminoid character, but subsequently either diffused throughout the liquid or forming a scum on the surface; in which latter case Dr. Sanderson has discovered that the rods stand vertically side by side. They usually accompany and promote (if they are not the cause of) putrefactive decomposition, feeding on the nitrogen of the albuminoid material which the liquid contains, and when that is absent, even on the nitrogen of an ammoniacal salt, such as tartrate of ammonia.

From a great variety of experiments, Dr. Sanderson ascertained that microzymes are not developed in liquids which have been heated to a temperature of 356° F., or which have even been boiled, and this whether the liquids are exposed to the air or not, and provided also that any distilled water used has been boiled, and even the surfaces of the glass tubes and vessels employed have been heated, either by immersion in boiling water, or by subjection to the temperature named. Now it is remarkable that, under the same circumstances which prevent the growth of microzymes, *fungi* appear, especially on the exposure of the liquids to air, and very abundantly in Pasteur's solution, which consists of a solution of sugar, tartrate of ammonia and yeast-ash only. The reason of the necessity for boiling the distilled water and thoroughly drying, by heat, the surface of the glasses used, arises from the fact that the germs of the microzymes are to be found in many samples of such water, since they are not absolutely pure, and even in the moisture resting on the surface of glass. That ordinary air does not contain microzymes was proved by drawing, by means of an aspirator, a quantity of air through a boiled test solution, no microzymes appearing in the liquid after it had been kept for a considerable time; and it was further established that really pure distilled water does not develop microzymes.

Now, the fact of the great impurity of many samples of distilled water, and that microzymes or vibriones, *fungi* and other animal and vegetable productions, are frequently developed in it, has long been known. The existence of microzymes in many impure waters was many years since pointed out by the writer in his *brochure* entitled, "A Microscopical Examination of the Waters supplied to the Metropolis," as also that they occurred in two states—free and in gelatinous spheroidal masses.

Dr. Sanderson, therefore, from all his experiments, arrives at the conclusion that "water is the primary source from which the germinal particles of bacteria are derived, whenever they seem to originate spontaneously in organic solutions;" and since their development depends on the presence, in impure water, of nitrogenous matter, it, of course, follows that, the greater the amount of this, the more abundantly are the microzymes developed when added to Pasteur's test solution; and Dr. Sanderson proposes to judge of the extent of this kind

of impurity of water by the degree of the *opalescence* produced by different water operated upon in the same manner, as follows:—A small cylindrical glass, capable of holding ten cubic centimetres, is first heated to 395° F. This is then half-filled with boiling Pasteur's solution, and to this are added five drops of the water to be tested, the mouth of the glass being plugged with cotton wool. After each testing, the pipette used must be immersed for some minutes in boiling distilled water. If impure, after the lapse of from six to ten days, the upper part of the liquid will be observed to be opalescent, and, on examination with the microscope, microzymes will be detected. The tube in which the water is collected for examination must be prepared or superheated beforehand, both ends being hermetically closed before it leaves the flame of the blowpipe; thus prepared, it is filled by breaking off one end while it is under the water.

Dr. Sanderson terms the power of water to develop microzymes "the zymotic property," and measures it by their abundance, and the consequent degree of opacity to which their presence gives rise.

By the method above described, the waters of some of the London companies were tested, and all "acted zymotically" in different degrees, filtration exercising "no perceptible influence on the zymotic power of water."

Further, Dr. Sanderson found that water obtained by the fusion of ice, which was so pure that it showed only a blue tint under the electric beam, was "as zymotic as many other varieties of water which in the beam are seen to be full of light scattering particles."

Lastly, it was ascertained that microzymes, when thoroughly dried at a temperature of 104° F., and added to the test solution in the usual way, did not give rise to any development of microzymes; the germinal power of which, when similarly tested, was also destroyed by ozone, permanganate of potash, carbolic acid, quinine, peroxide of hydrogen and chlorine.

Experiments with the blood, tissues, albumen and urine showed that these are non-zymotic, while the results with milk, pus and blister serum seem somewhat doubtful.

Such is a brief and, we trust, an intelligible exposition of Dr. Sanderson's researches and many experiments "On the Origin and Distribution of Microzymes in Water." We will now proceed to make a few remarks on the results obtained.

As already stated, the fact of the presence of microzymes in impure water has long been known, but the observations in question show that either the microzymes themselves, or the germinal matter from which they proceed, are all but universally present in water, awaiting only the occurrence of circumstances favorable for their further development. That they most abound in waters of great impurity was also ascertained, and that from such water they should be freely produced when supplied with nitrogenous food, as is the case when Pasteur's solution is used, is but natural. The facts as to the non-conveyance of microzymes by dry air, and their destruction by thorough desiccation and by various re-agents, are interesting and important. Of the practical value of the microzyme test for determining the quality of a water we do not think very highly, and believe the method cannot be made safely to supersede, or be a substitute for, the usual qualitative and quantitative chemical examinations of water. We observe that Dr. Sanderson terms his researches "Studies of Contagion;" but no proof is given that the microzymes are really capable of giving rise to contagious disease; they are contagious only in the sense that they infect the materials, if these are of a suitable nature to support them, with which they, through impure water, are brought into contact. The very fact of the universality of their presence in water is a reason for regarding these particular microzymes as harmless, so far as relates to the propagation of disease. Further, the propriety of the phrases "zymotic power," or "zymotic property," may be questioned, as applied to waters which either contain, or are capable of giving rise to microzymes, since the inference will be drawn by many that such waters possess the property of giving rise to "zymotic diseases," which has not been established.—*Food, Water and Air*, November, 1871.

Dental News and Miscellany.

DENTAL DEPARTMENT OF HARVARD UNIVERSITY.—The Annual Commencement of this institution took place on February 14th, when four gentlemen of the graduating class read portions of their theses, after which the degree of *Doctor in Dental Medicine* was conferred upon fifteen gentlemen. The valedictory address was delivered by Dr. Oliver Wendell Holmes, Parkman Professor of Anatomy. The address was graceful and appropriate, and the occasion one which will, perhaps, do more than any other recent event to secure a position for dentistry among the professions.

We confess that we do not see any reason, however, for substituting the degree of Doctor of Dental Medicine for that of Doctor of Dental Surgery, the degree usually conferred; for if any other term than that of medicine in its most general meaning is required, dental surgery is certainly the one which more correctly indicates the nature of dental practice.

We are also glad to learn that a summer session of the Harvard Dental School is announced, to continue four months, and to include branches of study and practical exercises, supplementary to the regular winter system.

PHILADELPHIA DENTAL COLLEGE.—The Commencement of the Philadelphia Dental College was held at the Academy of Music, on Thursday, February 29, at 3 P. M. The valedictory address to the class by Dr. T. C. Stellwagen, was earnest, impressive, and attentively listened to by a large audience.

NEW ORLEANS COLLEGE OF DENTAL SURGERY.—The annual commencement of the New Orleans College of Dental Surgery took place at College Hall, in that city, on Thursday evening, March 14th.

The degrees were conferred by the Dean, Prof. Jas. S. Knapp, D. D. S. The salutatory by Prof. T. P. Cutler, M. D., D. D. S., and valedictory by R. E. Bullington, D. D. S. The number of matriculants was twenty-seven—eleven of these graduating this session.

BALTIMORE COLLEGE OF DENTAL SURGERY.—The thirty-second annual commencement of this college was held at Concordia Opera House, on Thursday evening, February 29th.

The degree of D. D. S. was conferred upon eighteen gentlemen by Prof. F. J. S. Gorgas, Dean of the Faculty.

The valedictory address was delivered by Prof. P. H. Austin, and the pleasing features of an address on behalf of the graduating class, by Dr. T. A. Ferguson, was added.

RESOLUTIONS OF RESPECT.—At a meeting of the Executive Committee of New York and Brooklyn, March 21st, 1872, to hear the report of the delegates to Washington, the following resolutions were adopted, and it was desired that copies should be sent to the dental journals for publication, as a tribute eminently due to the gentlemen mentioned.

Resolved, That the energy, ability and integrity which have been shown by our counsel, Gen. John A. Foster and Samuel J. Glassey, Esq., in the preparation and presentation of the case of Dr. B. E. Gardner, against the Cummings'

patent, just argued in the U. S. Supreme Court, at Washington, entitle them to this recognition of their services by the Committee, and merit this public acknowledgement of their untiring labor and skillful management of the case; also,

Resolved, That the Committee gladly recognize their obligations to the gentlemen of the Baltimore and Washington Committees, and to their counsel, Orville Horwitz, Esq., for the efficient support they have so promptly and cheerfully given to the measures which, it is hoped, will result in our speedy and final success.

W. A. BRONSON, *Secretary*.

C. A. WOODWARD, *Chairman*.

New York, March 23, 1872.

DR. THOMAS W. EVANS.—Among the promotions in the Legion of Honor included in the decree published in the *Journal Officiel* on Tuesday last, is that of our countryman, Dr. Thomas W. Evans, to the rank of commander. "The doctor has been long a member of the order, having been named Chevalier in July, 1853, and Officer in January, 1866. If we do not mistake he is the first foreigner who has obtained the rank of Commander. By the terms of the decree, he received his promotion for services rendered as "Director of the American Ambulance," but it might also have been added as its founder. We are glad for two reasons that the Republican Government of France has conferred this distinction on Dr. Evans; first, because it has been merited by hard service and large pecuniary sacrifices, and secondly, because it is a complete answer to the calumny that he is an Imperialist in his political tendencies. The doctor has shown his gratitude to the country which has given him a hospitable reception, by abstaining from all interference in its political affairs. Besides, his profession places him in a position so delicate and difficult that it would be impossible for him to gratify such inclinations if he had them.

His course in regard to the Empress, when in her misfortunes she threw herself on his protection, was that of a gallant gentleman and nothing more, and the Government of M. Thiers fully recognizes the fact by conferring upon him a distinction, which, though unsought for, has been earned by zealous and substantial service to France."—*American Journal of Dental Science*, December, 1871.

FIVE TEMPORARY TEETH AT FORTY.—The *Canada Journal of Dental Science* reports the case of a lady who had five teeth removed at the age of forty, which on examination proved to be the temporary teeth, the permanent ones coming on after them.

DENTISTRY IN THE UNITED STATES.—The dental profession in the United States, it is understood comprises 13,000 members, who earn an aggregate income of \$24,000,000. The annual expenditure for materials amounts to \$2,000,000, and for office rents to \$3,000,000, leaving \$19,000,000 as the net income of the profession. There are nine dental colleges in the United States, from which 1,807 persons have graduated. The profession supports several dental periodicals, with an aggregate circulation of 12,900 copies. There are no dental colleges in the countries of Europe.—*American Journal of Dental Science*, December, 1871.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.



TRUSTEES.

HENRY C. CAREY, PRESIDENT,
W. L. ATLEE, M. D.,
ELLERSLIE WALLACE, M. D.,
W. W. FOUCHE, D. D. S.,
J. D. WHITE, D. D. S.,
S. DILLINGHAM, D. D. S.,

G. R. MOREHOUSE, M. D.,
THOMAS WOOD,
HON. W. S. PEIRCE,
GEORGE TRUMAN, M. D.,
S. WEIR MITCHELL, M. D.,
A. B. ROBBINS, D. D. S.,

CHARLES HAMILTON, D. D. S., SECRETARY.

FACULTY.

T. L. BUCKINGHAM, D. D. S.,
PROFESSOR OF CHEMISTRY.

E. WILDMAN, M. D., D. D. S.,
PROFESSOR OF MECHANICAL DENTISTRY AND METALLURGY.

G. T. BARKER, D. D. S.,
PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS.

JAMES TRUMAN, D. D. S.,
PROFESSOR OF DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

JAMES TYSON, M. D.,
PROFESSOR OF PHYSIOLOGY AND HISTOLOGY.

J. EWING MEARS, M. D.,
PROFESSOR OF ANATOMY AND SURGERY.

E. R. PETTIT, D. D. S.,
DEMONSTRATOR OF OPERATIVE DENTISTRY.

C. E. EDWARDS, D. D. S.,
DEMONSTRATOR OF MECHANICAL DENTISTRY.

W. R. MILLARD, D. D. S.,
ASSISTANT DEMONSTRATOR OF OPERATIVE DENTISTRY.

A. B. ABELL, JR., D. D. S.,
ASSISTANT DEMONSTRATOR OF MECHANICAL DENTISTRY.

E. WILDMAN, DEAN,
 1205 Arch Street.

 PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Sixteenth Annual Session, 1872-'73.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, when ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability. During October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on the first day of November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation, and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND MICROSCOPIC ANATOMY.

The lectures from this chair will include human physiology, histology and physiological chemistry, with such portions of comparative physiology as are essential to a comprehensive understanding of the subject. The doctrines of life and organization will be appropriately considered. The course will be amply illustrated by appropriate diagrams, chemico-physiological experiments and vivisections, as well as by microscopical demonstrations.

ANATOMY AND SURGERY.

The instruction in this department will embrace a systematic course of Lectures on Descriptive and Surgical Anatomy, fully illustrated by dissections on the *cadaver*, preparations, models, drawings, &c.

The minute anatomy of the various organs and tissues of the body will be shown by the class microscope, and particular attention will be given to the demonstration of the anatomy of the head and face.

Clinical instruction in the diagnosis and treatment of the surgical diseases of the mouth will be given once a week by the incumbent of the chair. Students will thus have the opportunity of studying oral diseases, and witnessing the operations adopted in their treatment.

CLINICAL INSTRUCTION.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the demonstrators.

IN THE OPERATIVE DEPARTMENT.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms

are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

IN THE MECHANICAL DEPARTMENT.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

PRACTICAL ANATOMY.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

HOSPITAL CLINICS.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEES.

Matriculation, (paid but once,) - - - - -	\$5 00
For the Course, (Demonstrator's ticket included,) - - - - -	100 00
Diploma, - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Gray's, Leidy's, or Sharpey & Quain's Anatomy; Kirke's Physiology, (English edition); Dalton's or Flint's Physiology; Tyson's Cell Doctrine; United States Dispensatory; Stille's Therapeutics; Fownes Elements of Chemistry; Brandt & Taylor's Chemistry; Flint's Practice of Medicine; Tanner's Practice; Tomes' Dental Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the same subjects.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited

in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

For further information, address

E. WILDMAN, Dean,
No. 1205 Arch Street, Philadelphia.

BOARD can be obtained at from \$4.00 to \$8.00 per week.

ALL THE INSTRUMENTS AND TOOLS required can be procured for from \$15.00 to \$20.00.

JOHN C. BAKER & CO.'S **Genuine Medicinal Cod-Liver Oil**

Is the greatest remedy of the age. Its virtue is proved daily in arresting Diseases of the Throat and Lungs, Debility, Scrofula, etc. We have constant reports from patients, stating that it helps them immediately when everything else has failed. The article prepared by us is not unpleasant in taste, and can be taken with ease by the most delicate. We are the only parties in this country making a special business of it. Be sure you get

JOHN C. BAKER & CO.'S OIL.

a72-4t

718 MARKET STREET, PHILADELPHIA.

JEFFERSON MEDICAL COLLEGE, **PHILADELPHIA, PA.**

The regular winter session will begin on the second Monday in October, 1871. *Free* Preliminary Lectures open on the 4th of September and continue until the beginning of the regular course. A supplementary course is given during April, May and June, illustrated by bedside clinics at the Philadelphia Hospital, also by the clinics of the College and various hospitals of the city. Every facility will be afforded to the student. Board, \$4.50 to \$6 per week. For announcement containing full particulars, address

B. HOWARD RAND, M. D.,

Oct'71-1yr.

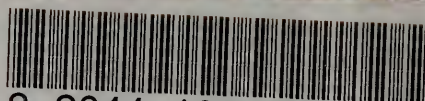
DEAN OF THE FACULTY.

M. L. FREDERICK,

Engraver of

Seals, Card and Door-Plates,
153 South Fourth Street,

PHILADELPHIA.



3 2044 103 048 823